KENWOOD

MIDI COMPACT AUDIO SYSTEM

MIDI M-85
MIDI M-959

INSTRUCTION MANUAL

KENWOOD CORPORATION

B60-0608-00 (JA) (E, T, M, X) [AP] [T]
92/12 11 10 9 8 7 6 5 4 3 2 1 91/12 11 10 9 8 7

Introduction

Your choice of this product indicates that you are a devotee to excellence in sound reproduction.
We appreciate your patronage and take pride in the long tradition of quality components that our company represents.
So that you can get the most out of your unit, we suggest that you take the time to read through this manual before you hook up and operate your system. This will acquaint you with operating features and system-connection considerations so that your listening pleasure will be enhanced right from the start. You will notice that in all aspects of planning, engineering, styling, operating convenience and adaptability we have sought to anticipate your needs and desires.
Keep this manual handy for future reference.

For your records

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your dealer for information or service on this product.
Model———————— Serial Number————————

Unpacking

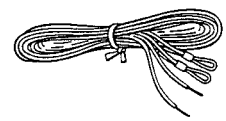
Unpack the unit carefully and make sure that all accessories are put aside so they will not be lost.
Examine the unit for any possibility of shipping damage. If your unit is damaged or fails to operate, notify your dealer immediately. If your unit was shipped to you directly, notify the shipping company without delay. Only the consignee (the person or company receiving the unit) can file a claim against the carrier for shipping damage.
We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in the future.

When your unit needs to be repaired, bring the entire set (Speakers excluded) to your dealer.

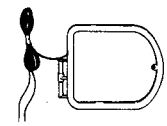
WARNING NOTICE:
IN MOST CASES IT IS AN INFRINGEMENT OF COPYRIGHT TO MAKE COPIES OF TAPES OR DISCS WITHOUT THE PERMISSION OF THE COPYRIGHT OWNERS. ANYONE WISHING TO COPY COMMERCIALLY AVAILABLE TAPES OR DISCS SHOULD CONTACT THE MECHANICAL COPYRIGHT PROTECTION SOCIETY LIMITED OR THE PERFORMING RIGHTS SOCIETY LIMITED.

Accessories

T-type (FM) feeder antenna 1

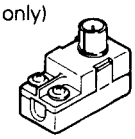


Loop antenna 1

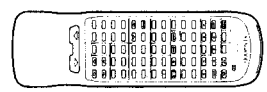


Antenna stand 1

Antenna adaptor (75 Ω/300 Ω) ..... 1 (M-85 only)

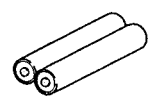


Remote control unit 1



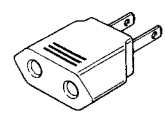
System control cord 1

Battery (AAA/R03/UM-4) 2



Audio cords 3

AC plug adaptor ..... 1 (except for some areas)



For the unit with a European AC plug in areas other than Europe.

Contents

Caution: Read the pages marked ⚠ carefully to ensure safe operation.

Introduction 2
⚠ Before applying power 3
⚠ Safety precautions 3
⚠ IMPORTANT SAFEGUARDS 4
Before operation 6
Controls and indicators 8
Time adjustment 11
Operation of remote control unit 12
Sound adjustment procedures 14
Operation of tuner 16
Playback operation of cassette decks 20
DPSS operation 22
Recording operation of cassette deck 24
Recording on CD playback (CCRS) 28
Tape dubbing 36
Operation with video components 37
Let's sing 38
Concerning presence 40
Dolby PRO LOGIC/3 STEREO mode 42
Presence mode 44
Timer operations 46
In case of difficulty 54
⚠ Specifications 57

Before applying power

⚠ **Caution : Read this page carefully to ensure safe operation.**

For the U.S.A. and Canada

Important!

Units shipped to the U.S.A. and Canada are designed for operation on 120 volts AC only.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THE AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

For the United Kingdom

Important!

Units shipped to the U.K. are designed for operation on 240 volts AC only.

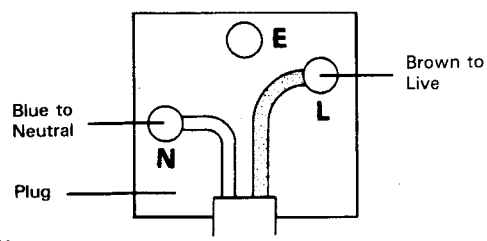
The mains plug must be removed from the wall socket prior to any internal examination.

The wires in this mains lead are coloured in accordance with the following code:

Blue ..... Neutral
Brown ..... Live

The wires in this mains lead must be connected to the terminals in the plug as follows:

Wire colour	**Plug terminal marking**
Blue	N or Black
Brown	L or Red



Notes:

1. If a 13-amp plug is used, this must be fitted with a 5-amp fuse.
2. If a 3-pin plug with earthing contact is used, no wire must be connected to the E terminal.

For Australia and Europe

Important!

Units shipped to Australia are designed for operation on 240 V AC only.

Units shipped to Europe are designed for operation on 230 V AC only.

For other countries

Important!

Units shipped to countries other than the above countries are equipped with an AC voltage selector switch on the rear panel. Refer to the following paragraph for the proper setting of this switch.

AC voltage selection

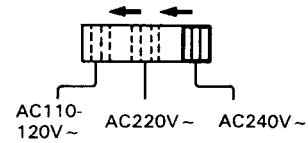
This unit operates on 110-120 or 220-240 volts AC. The AC voltage selector switch Type A or Type B on the rear panel is set to the voltage that prevails in the area to which the unit is shipped. Before connecting the power cord to your AC outlet, make sure that the setting position of this switch matches your line voltage. If not, it must be set to your voltage in accordance with the following direction.

Note:

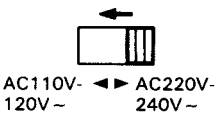
Our warranty does not cover damage caused by excessive line voltage due to improper setting of the AC voltage selector switch.

AC voltage selector switch

Type A



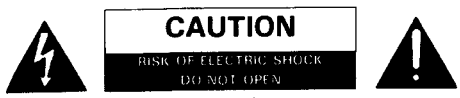
Type B



Move switch lever to match your line voltage with a small screwdriver or other pointed tool.

Safety precautions

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

	CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
	THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.
	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.

IMPORTANT SAFEGUARDS

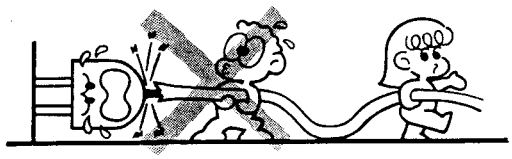
⚠ Caution : Read this page carefully to ensure safe operation.

Please read all of the safety and operating instructions before operating this unit. For best results, follow all warnings placed on the unit and adhere to the operating and use instructions. These safety and operating instructions should be retained for future reference.

1. **Power sources –** The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

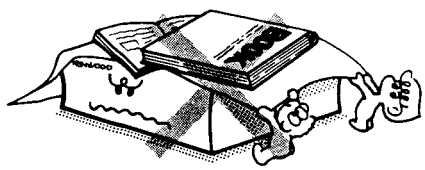
2. **Power-cord protection –** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Never pull or stretch the cord.

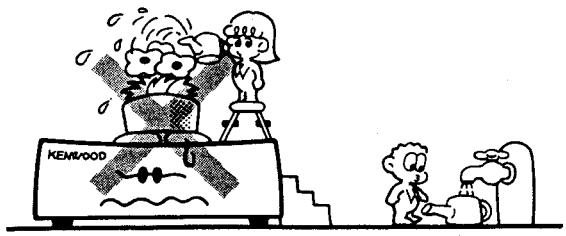


3. **Grounding or polarization –** The precautions should be taken so that the grounding or polarization means of this unit is not defeated.

4. **Ventilation –** The unit should be situated so that its location or position does not interfere with its proper ventilation.
To maintain good ventilation, do not put records or a table-cloth on the unit. Place the unit at least 10 cm away from the walls.
Do not use the unit on a bed, sofa, rug or similar surface that may block the ventilation openings.

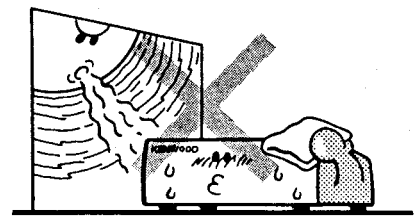


5. **Water and moisture –** The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

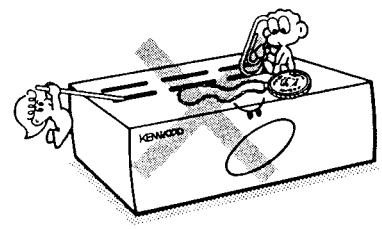


6. **Temperature –** The unit may not function properly if used at extremely low, or freezing temperatures. The ideal ambient temperature is above +5°C (41°F).

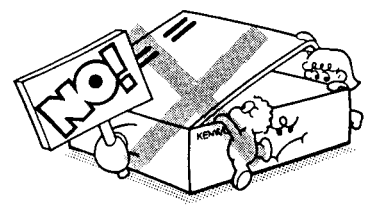
7. **Heat –** The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other units (including amplifiers) that produce heat.



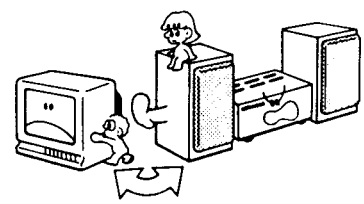
8. **Electric shock –** Care should be taken so that objects do not fall and liquid is not spilled into the enclosure through openings. If a metal object, such as a hair pin or a needle, comes into contact with the inside of this unit, a dangerous electric shock may result. For families with children, never permit children to put anything, especially metal, inside this unit.



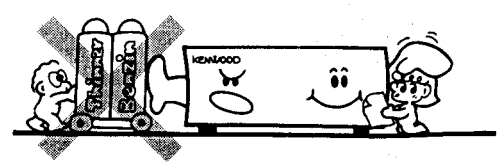
9. **Enclosure removal –** Never remove the enclosure. If the internal parts are touched accidentally, a serious electric shock might occur.



10. **Magnetic fields –** Keep the unit away from sources of magnetic fields such as TV sets, speaker systems, radios, motorized toys or magnetized objects.



11. **Cleaning –** Do not use volatile solvents such as alcohol, paint thinner, gasoline, or benzine, etc. to clean the cabinet. Use a clean dry cloth.

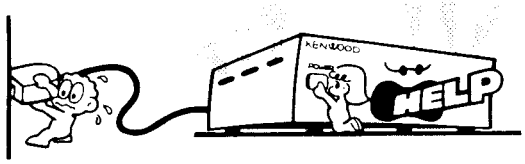


12. **Carts and stands** — An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

13. **Nonuse periods** — The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.

14. **Abnormal smell** — If an abnormal smell or smoke is detected, immediately turn the power OFF and pull out the power cord. Contact your dealer or nearest service center.

POWER OFF!



15. **Damage requiring service** — The unit should be serviced by qualified service personnel when:

A. The power-supply cord or the plug has been damaged; or

B. Objects have fallen, or liquid has been spilled into the unit; or

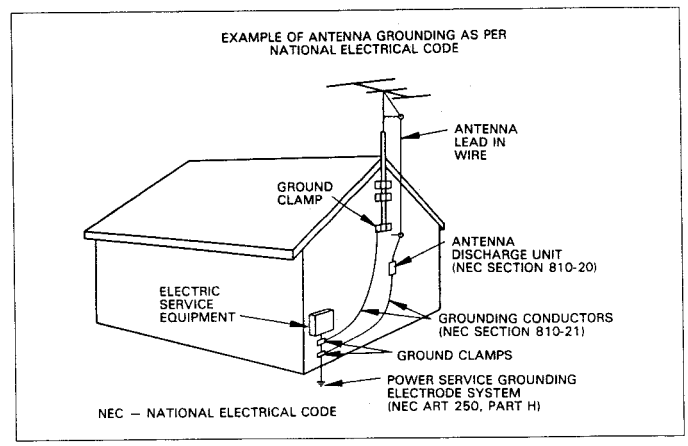
C. The unit has been exposed to rain; or

D. The unit does not appear to operate normally or exhibits a marked change in performance; or

E. The unit has been dropped, or the enclosure damaged.

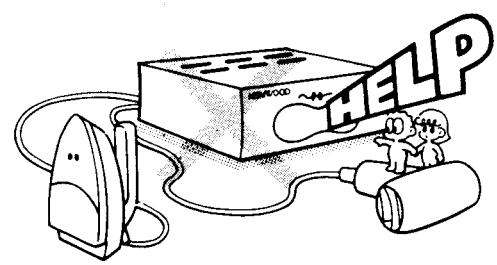
16. **Servicing** — The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

17. **Outdoor antenna grounding** — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure.


EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE
ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)
NEC – NATIONAL ELECTRICAL CODE

18. **Power lines** — An outdoor antenna should be located away from power lines.

19. **AC outlets** — Do not connect other audio equipment with a power consumption larger than that specified to the AC outlet on the rear panel. Never connect other electrical units, such as an iron or toaster, to it to prevent fire or electric shock.



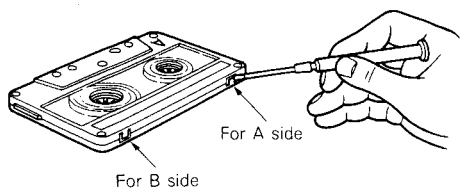
Notes:

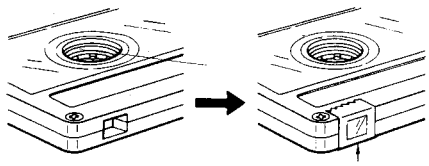
1. Item 3 is not required except for grounded or polarized equipment.
2. Item 17 and 18 are not required except for units provided with antenna terminals.
3. Item 17 complies with UL in the U.S.A.

Before operation

■ Notes on cassette tape

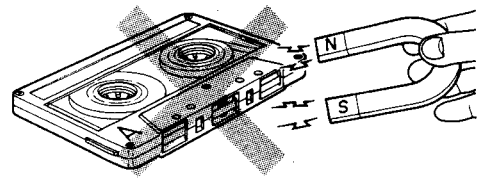
- **Safety tab** (accidental erasure prevention tab)
  After an important recording has been finished, break the safety tab, to prevent the recorded contents from being erased or recorded on accidentally.



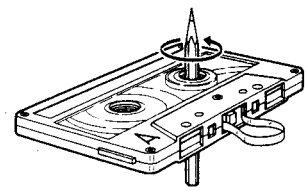


To re-record Cover with adhesive tape.

- **To store cassette tapes**
  Do not store the tapes in a place which is subject to direct sunlight, or near equipment that generates heat. Keep the cassette tapes away from any magnetic field.

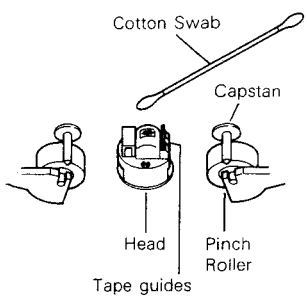


- **When there is slack in the tape**
  In such a case, insert a pencil into the reel hole and wind the reel hub to remove the slack.



Notes:
1. 120-minute cassette tape:
   Since a 120-minute cassette tape is very thin, the tape could adhere to the pinch roller or be easily cut. It is recommended that these tapes not be used with this unit to prevent possible damage.
2. Endless tapes:
   Do not use an endless tape, as this could damage the mechanism of the unit.

■ Cleaning the head section



Cleaning the heads and peripheral components:
For maintaining the best condition of the deck and for longer service life, always keep the head (recording/playback/erase), capstan and pinch roller clean.
To clean them, perform the following:
1. Open the cassette holder.
2. Using a cotton swab dipped in alcohol, clean the head (recording/playback/erase), capstan and pinch roller carefully.

Demagnetizing the head
When the recording/playback head is magnetized, the sound quality will be deteriorated. In such a case, demagnetize the head using a commercially available demagnetizer (head eraser).

Note:
There are precisely aligned parts around the heads, including the tape guides.
When cleaning, pay special attention so as not to apply shock to them.

■ Beware of condensation

When water vapor comes into contact with the surface of cold material, water drops are produced.
If condensation occurs, correct operation may not be possible, or the unit may not function correctly.
This is not a malfunction, however, and the unit should be dried. (To do this turn the POWER switch ON and leave the unit as it is for several hours.)

Be especially careful in the following conditions
- When the unit is brought from a cold place to a warm place, and there is a large temperature difference.
- When a heater starts operating.
- When the unit is brought from an air-conditioned place to a place of high temperature with high humidity.
- When there is a large difference between the internal temperature of the unit and the ambient temperature, or in conditions where condensation occurs easily.

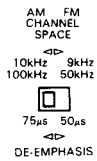
Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

FM DE-EMPHASIS/CHANNEL SPACE switch (Except for some areas)

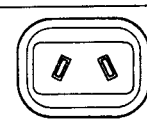
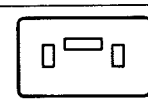
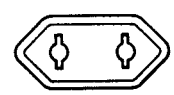
The FM DE-EMPHASIS/CHANNEL SPACE switch on the rear panel is set to the correct setting that prevails in the area to which the unit is shipped. However, if the FM DE-EMPHASIS/CHANNEL SPACE setting is not matched to the area where the unit is to be used; for instance, when you move from area 1 to area 2 or vice versa, desired reception of AM/FM broadcasts is not expected. In this case, change the FM DE-EMPHASIS/CHANNEL SPACE setting in accordance with the area corresponding to the table. The FM DE-EMPHASIS is switched over at the same time.

- When changing the setting of the FM DE-EMPHASIS/CHANNEL SPACE switch, first disconnect the power cord, then reset the channel space switch, connect the power cord again, and turn the power on.

	Area	CHANNEL SPACE freq.	FM DE-EMPHASIS
1	U.S.A., Canada, and South american countries	FM : 100 kHz AM : 10 kHz	75 µ s
2	Other countries	FM : 50 kHz AM : 9 kHz	50 µ s



AC outlets on the rear panel

Unit destination	Shape of the AC outlet
For AUSTRALIA	
For U.K.	
For Europe	
For other countries	

Strömbrytarens POWER beredskapsläge

Indikatorm STAND BY tänds efter nätkabelns anslutning till ett väggutag, oavsett strömbrytarens POWER till/fränslag. Detta anger att en liten mängd ström leds till komponenten som stöd för minnesinnehållet.
Detta läge kallas för beredskapsläget. Strömbrytaren på fjärrkontrollen kan användas för att slå på och av strömmen så länge indikatorn STAND BY lyser.

Virtanäppäimen (POWER) valmiustila (STAND BY)

Kun laitteen verkkojohto on liitetty pistorasiaan, valmiustilan merkkivalo syttyy riippumatta virtanäppäimen (POWER) asennosta (ON/OFF). Merkkivalo osoittaa, että laitteessa on hieman virtaa muistin sisältöjen ylläpitoa varten. Tätä tilaa kutsulaan valmiustilaksi. Kun valmiustilan merkkivalo (STAND BY) palaa, laitteen virta voidaan kytkeä ja katkaista kaukosäätimellä.

Afbrydertastens (POWER) STAND BY funktion

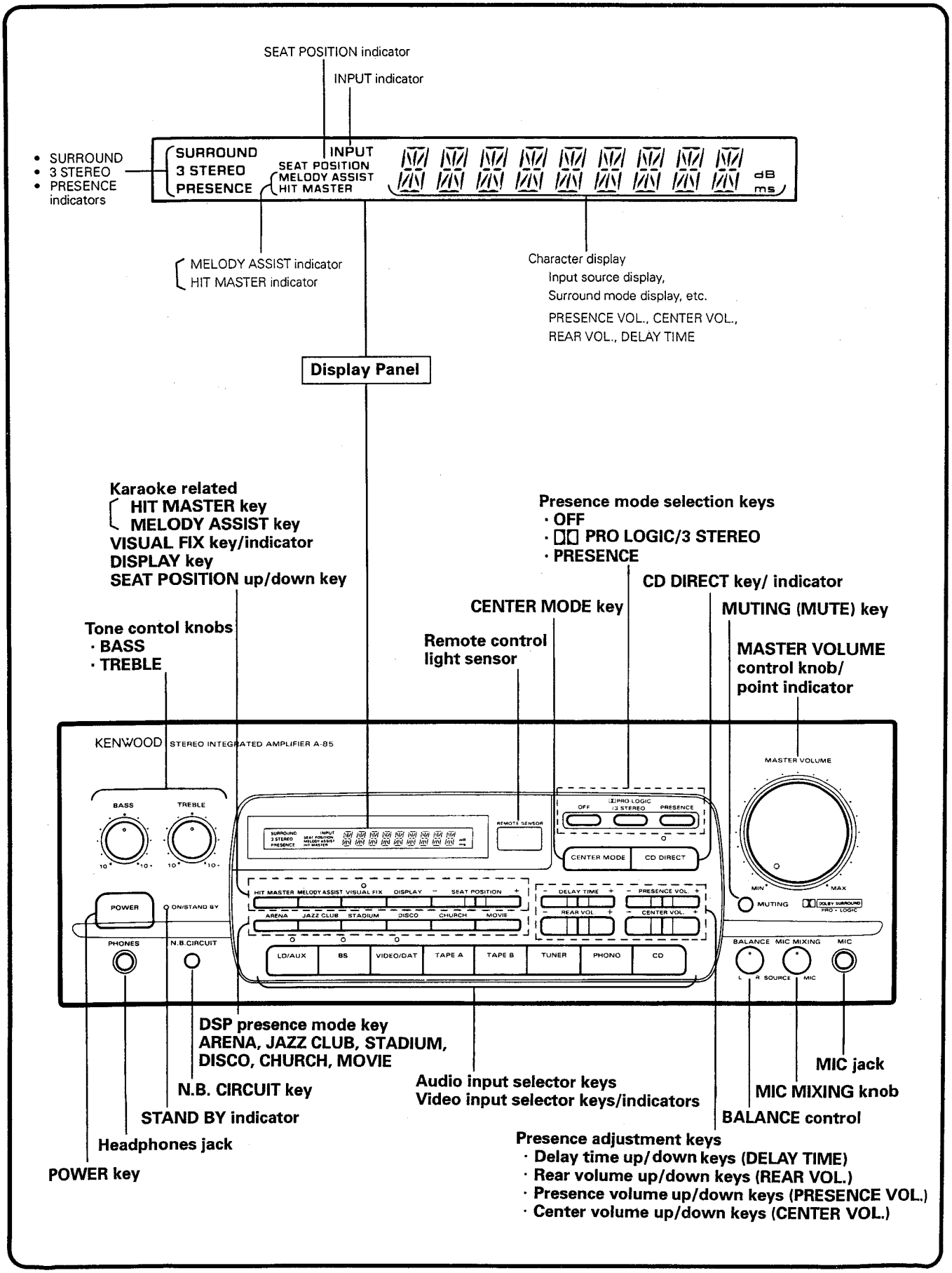
Når apparatets strømledning er tilsluttet en stikkontakt, lyser STAND BY indikatoren, uanset om der er tændt ved afbryderen på apparatet eller ej. Det angiver, at apparatet bliver forsynet med en ganske lille mængde strøm til opret-holdelse af hukommelsens indhold.
Denne funktion kaldes STAND BY. Når STAND BY indikatoren er tændt, kan strømmen til apparatet slås til og fra med fjernstyringsenheden.

PÅ/AV-knappens Stand-by funksjon

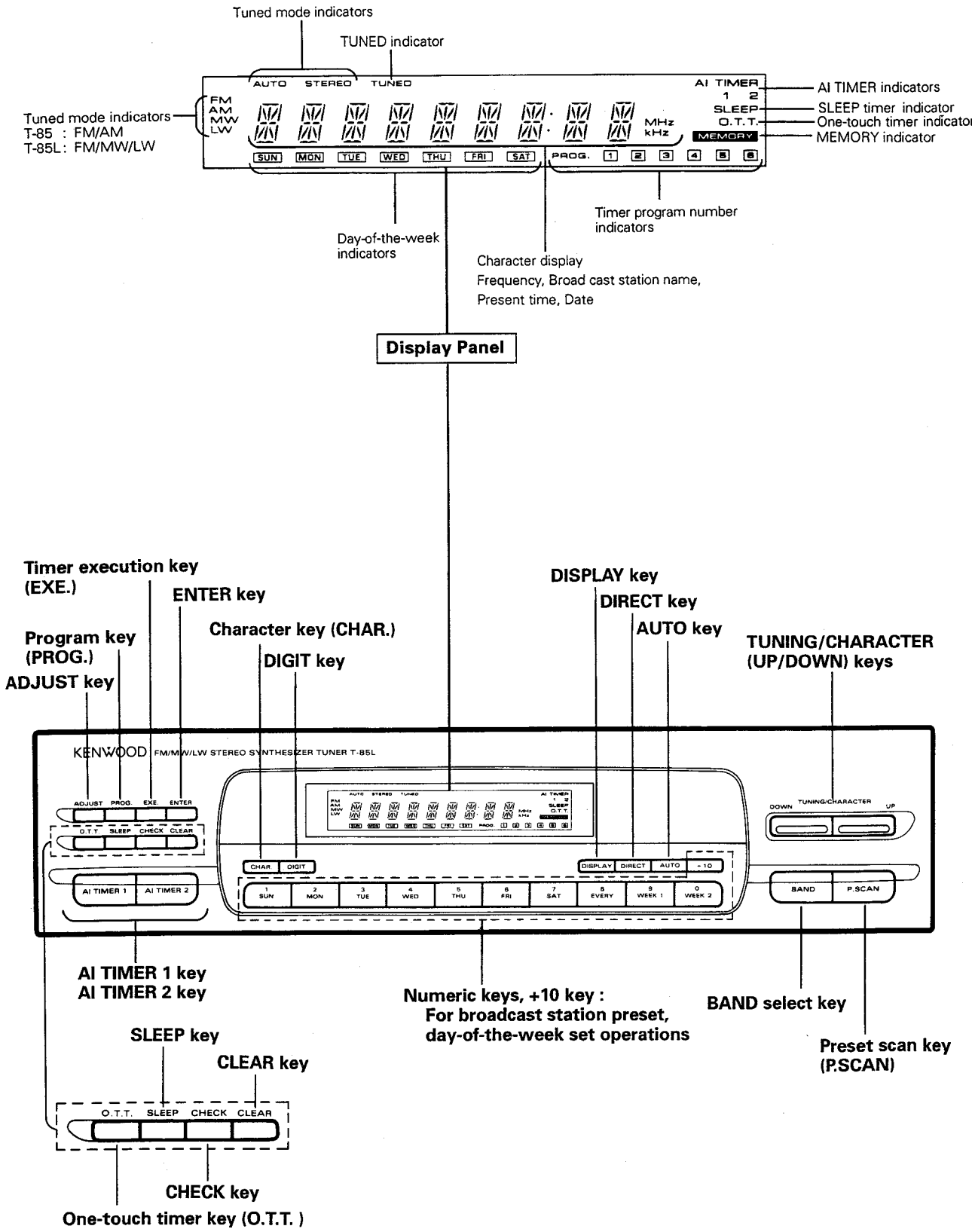
Når strømledningen til dette anlegget er satt i en vekselstrømskontakt, vil STAND BY indikatorlampen lyse enten PÅ/AV-knappen er på-eller avslått. Dette betyr at en viss mengde strøm tilføres anlegget slik at innholdet i minnet ikke går tapt.
Denne funksjonen kalles Stand-by. Når indikatorlampen for STAND-BY er tent, kan strømmen slås PÅ/AV fra fjernkontrollen.

Controls and indicators

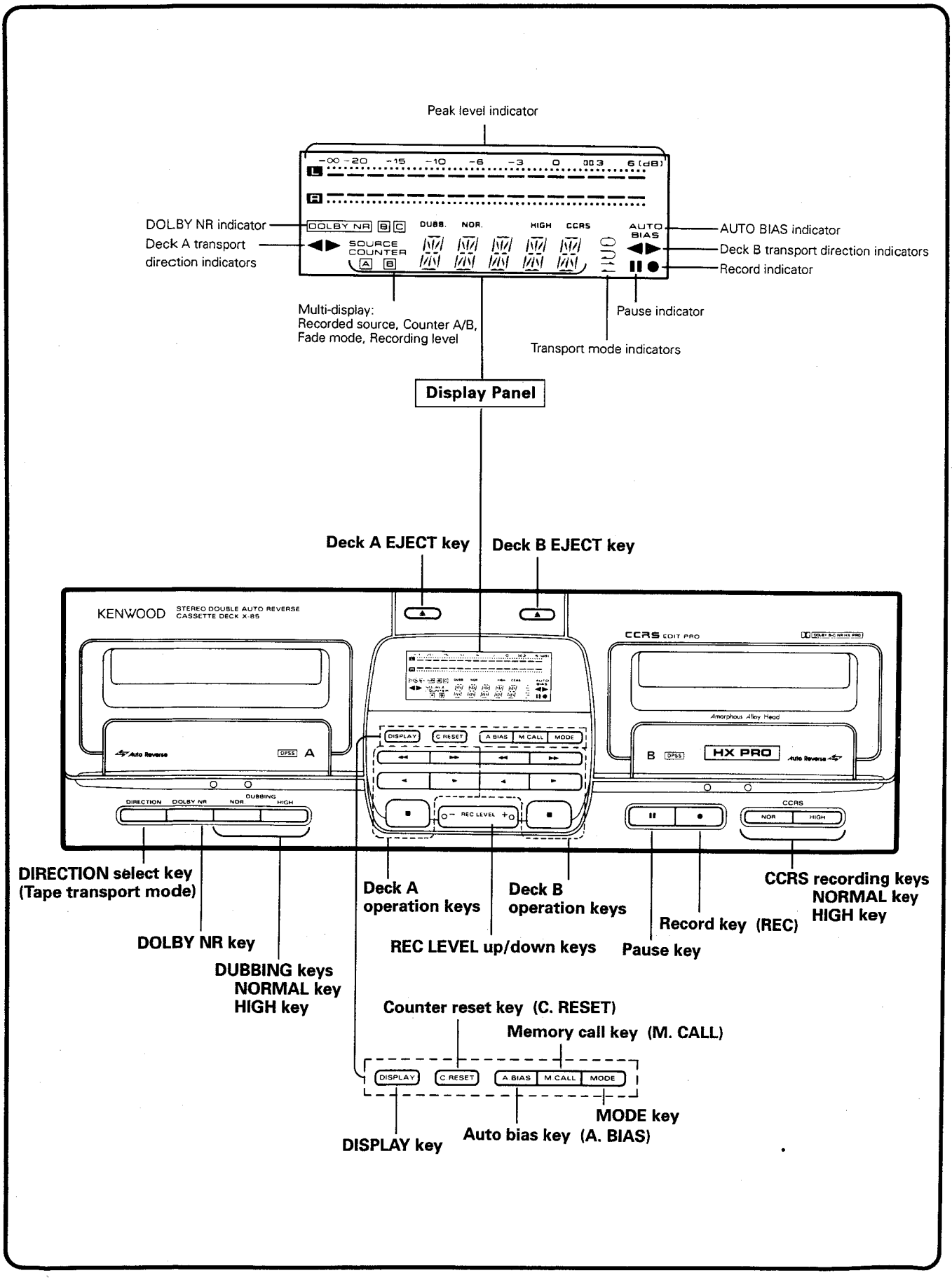
■ Amplifier



■ Tuner

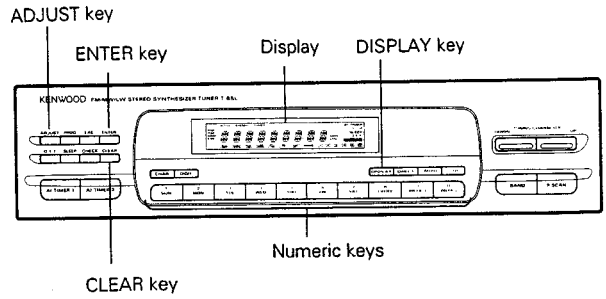

Tuned mode indicators
TUNED indicator
AUTO STEREO TUNED
AI TIMER
1 2
SLEEP
O.T.T.
MEMORY
FM
AM
MW
LW
MHz
kHz
SUN MON TUE WED THU FRI SAT
PROG. 1 2 3 4 5 6
AI TIMER indicators
SLEEP timer indicator
One-touch timer indicator
MEMORY indicator
Tuned mode indicators
T-85 : FM/AM
T-85L: FM/MW/LW
Day-of-the-week indicators
Timer program number indicators
Character display
Frequency, Broad cast station name,
Present time, Date
Display Panel
Timer execution key (EXE.)
ENTER key
Program key (PROG.)
ADJUST key
Character key (CHAR.)
DIGIT key
DISPLAY key
DIRECT key
AUTO key
TUNING/CHARACTER (UP/DOWN) keys
KENWOOD FM/MW/LW STEREO SYNTHESIZER TUNER T-85L
ADJUST PROG. EXE. ENTER
O.T.T. SLEEP CHECK CLEAR
AI TIMER 1 AI TIMER 2
CHAR DIGIT
DISPLAY DIRECT AUTO +10
1 SUN 2 MON 3 TUE 4 WED 5 THU 6 FRI 7 SAT 8 EVERY 9 WEEK 1 0 WEEK 2
DOWN TUNING/CHARACTER UP
BAND P.SCAN
AI TIMER 1 key
AI TIMER 2 key
Numeric keys, +10 key :
For broadcast station preset,
day-of-the-week set operations
BAND select key
Preset scan key (P.SCAN)
SLEEP key
CLEAR key
O.T.T. SLEEP CHECK CLEAR
CHECK key
One-touch timer key (O.T.T.)

■ Cassette deck

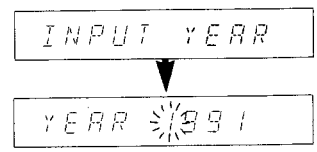

Peak level indicator
DOLBY NR indicator
Deck A transport direction indicators
AUTO BIAS indicator
Deck B transport direction indicators
Record indicator
Multi-display: Recorded source, Counter A/B, Fade mode, Recording level
Pause indicator
Transport mode indicators
Display Panel
Deck A EJECT key
Deck B EJECT key
KENWOOD STEREO DOUBLE AUTO REVERSE CASSETTE DECK X-85
DIRECTION select key (Tape transport mode)
DOLBY NR key
DUBBING keys NORMAL key HIGH key
Deck A operation keys
REC LEVEL up/down keys
Deck B operation keys
Pause key
Record key (REC)
CCRS recording keys NORMAL key HIGH key
Counter reset key (C. RESET)
Memory call key (M. CALL)
MODE key
DISPLAY key
Auto bias key (A. BIAS)

Time adjustment

The tuner incorporates the clock function. Adjust the clock the exact time, especially when the program timer function is to be used.

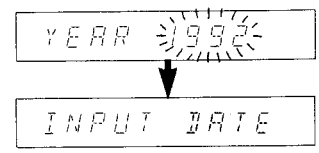


1 Press the ADJUST key.



2 Input the year using the numeric keys, and press the ENTER key.

To input 1992: **press** [1], [9], [9], [2]. ➡

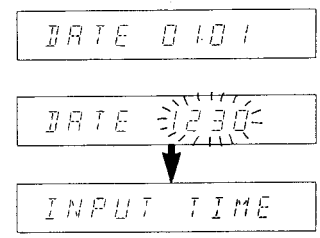


- If you commit a mistake in the input of numeric keys, press the [CLEAR] key, and re-start the input from the beginning.

3 Input the month then the day, and press the ENTER key.

To input March 7: **press** [0], [3], [0], [7].

To input December 30: **press** [1], [2], [3], [0].



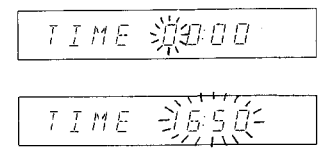
- If you commit a mistake in the input of numeric keys, press the [CLEAR] key, and re-start the input from the beginning.

4 Input the time of the day.

To input 9:05 AM: **press** [0], [9], [0], [5].

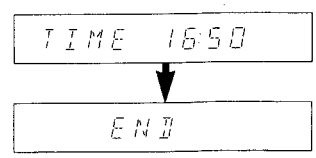
To input 4:50 PM: **press** [1], [6], [5], [0].

Use the 24-hour system.



- If you commit a mistake in the input of numeric keys, press the [CLEAR] key, and re-start the input from the beginning.

5 Press the ENTER key.



- For correct time adjustment, it is recommended to press the [ENTER] key at the same time as a time announcement.

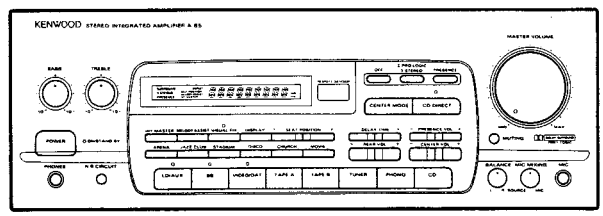
Clock starts to work.

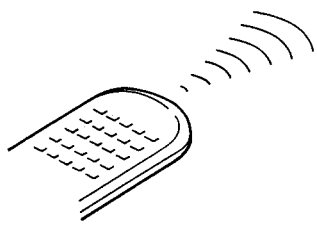
Note:
The time display blinks after a power failure or when the power cord was unplugged from the power outlet. In this case, adjust the time again.

Displayed contents and DISPLAY key

Every time the [DISPLAY] key is pressed while a radio station is received, the displayed content is switched to the frequency to the station name, present time, and date (month and day). When a key associated with tuning is pressed while the date or time is being displayed, it is switched to the frequency display, and returns to the previous content in a few seconds. When the [DISPLAY] key is pressed while the power is OFF, the displayed content is switched alternately between the date and time.

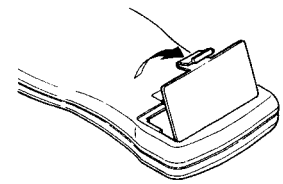
Operation of remote control unit



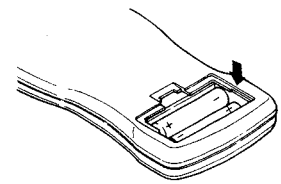


■ Loading batteries

1 **Remove the cover.**

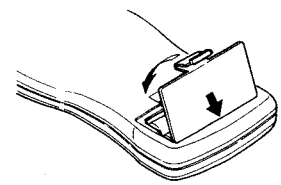


2 **Insert batteries.**



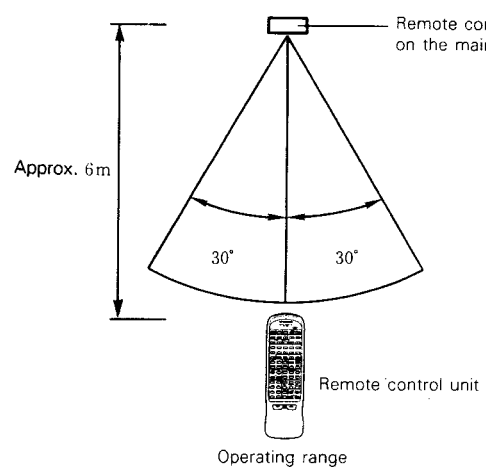
Insert two AAA-size (R03/UM-4) batteries as indicated by the polarity marking.

3 **Close the cover.**



■ Operation procedure

Plug the power cord of the system into an AC wall outlet, and press the POWER key on the remote control unit to turn the power on.
When the power is turned on, press the key of the source component to be operated.



- When two operation keys on the remote control unit are pressed successively, press each key securely reserving an interval of more than 1 second for each press.
- Components connected via the system control cords, such as the CD player, can also be remote-controlled. In this case, please read the instruction manual supplied with your CD player.

Notes:
1. The supplied batteries are intended for use in operation checks. Therefore, their lives may be shorter than ordinary batteries.
2. When the remote-controllable distance gets shorter than before, replace both batteries with new ones.
3. Malfunction may occur if direct sunlight or the light of a high-frequency lighting fluorescent lamp enters the remote control light sensor. In such a case, change the system installation position to prevent the malfunction.

POWER key (page 14)
Switches the system power supply ON/OFF.

SLEEP key (page 53)

DISPLAY key (page 14)
Operates in the same manner as the amplifier DISPLAY key.

A/B changeover switch
The A/B changeover switch is aligned with the color of letters.

Turntable operation keys
Read the instruction manual of the turntable.

Tuner operation keys (page 16)

Numerical keys
These keys function as numerical keys when the input selector is at CD or Tuner.

Cassette deck operation keys (page 20)

CD player operation keys (dedicated DP-950)

HIT MASTER key (page 38)
This key establishes mode for learning the hit music selection.

MELODY ASSIST key (page 38)
Serves to assist the voice of the singer.

Presence related keys
(from page 40)

□□PRO LOGIC/□□3 STEREO key
Enables switchover between □□PRO LOGIC and □□ 3 STEREO.

OFF key
Cuts off the presence effect of □□PRO LOGIC, □□ 3 STEREO and PRESENCE modes.

CENTER MODE key
Switches the center mode of □□PRO LOGIC/ □□ 3 STEREO modes.

TEST key
Sets the test tone to ON/OFF when □□PRO LOGIC or □□ 3 STEREO mode has been selected.

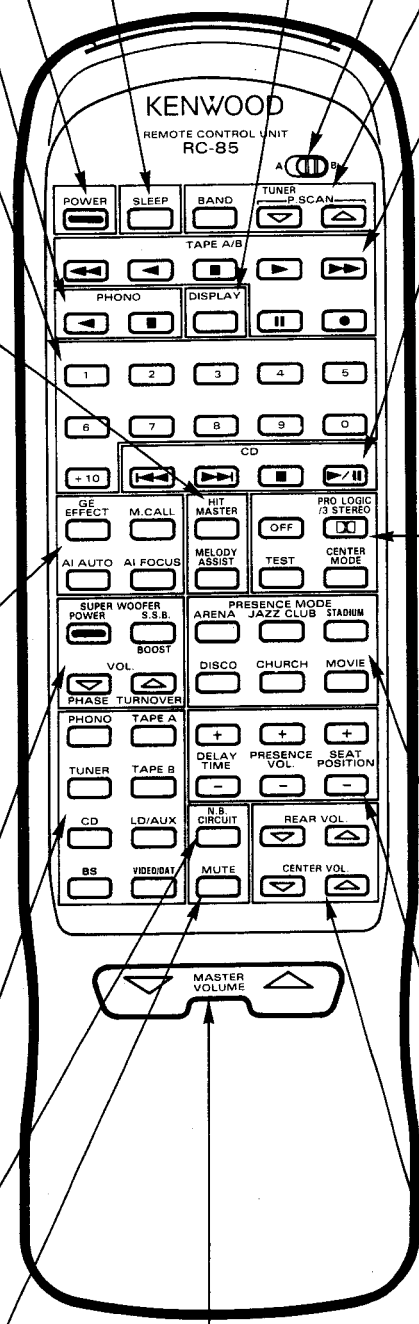
Graphic Equalizer operation keys (dedicated GE-850)

EFFECT:
Switches equalizer effect ON/OFF.

M.CALL:
Calls out patterns held in memory.

AI AUTO:
(for CD only) Sets the equalizer curve automatically.

AI FOCUS:
(for CD only) Sets the presence and equalizer curve automatically.



SUPER WOOFER operation keys
* Read the instruction manual of the super woofer.

PRESENCE MODE keys (page 44)
Selects the presence mode.

Input selector key (page 15)
Operates in the same manner as the amplifier selector key.

(from page 40)
DELAY TIME keys
Regulates the delay time.
PRESENCE VOL. keys
Regulates the volume of presence.
SEAT POSITION keys
Adjusts the seat position toward front or rear.

N.B. CIRCUIT key (page 14)
Operates in the same manner as the amplifier N.B. CIRCUIT key.

(from page 40)
REAR VOL. keys
Regulates the sound volume of the rear speaker.
CENTER VOL. keys
Regulates the sound volume of the center speaker.

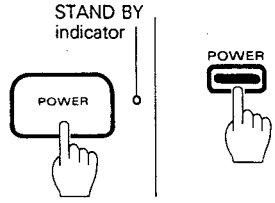
MUTE key (page 14)
Operates in the same manner as the amplifier MUTING key.

MASTER VOLUME keys (page 14)

Sound adjustment procedures

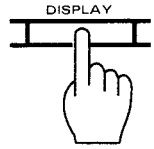
Press the POWER key of the amplifier.

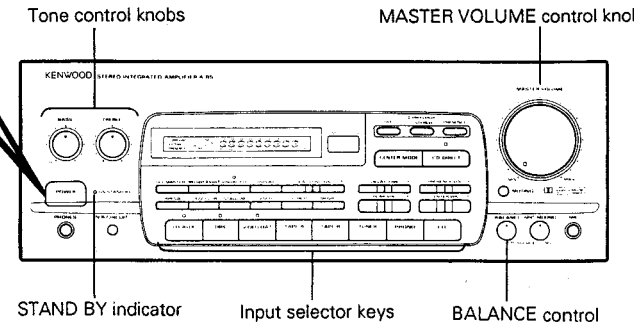
- The POWER key on the amplifier can switch on/off the powers of main system.



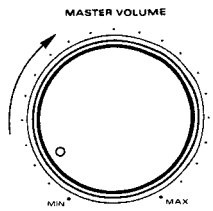
DISPLAY key

Every time the DISPLAY key is pressed, the display of the amplifier switches the input source and Dolby Surround/Presence mode.





■ Adjusting the volume

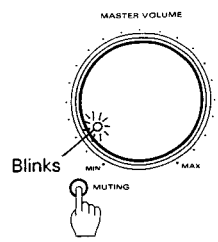


Amplifier main unit

Remote control unit

- When the volume is adjusted from the remote control unit, the point indicator on the MASTER VOLUME control blinks and rotates together with the control knob.
- The REAR VOL. and CENTER VOL. controls are used only in surround playback. Refer to the section "Concerning Presence" on pages 40 to 45.

To mute sound temporarily

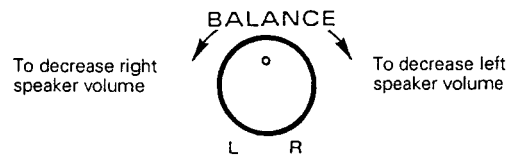


Amplifier main unit

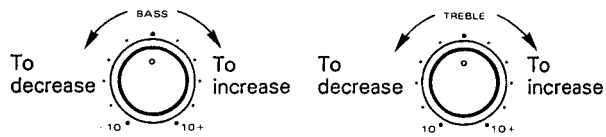
Remote control unit

- The MASTER VOLUME indicator blinks.
- Pressing the key again resumes the previous volume.

■ Adjusting the left and right volume balance



■ Adjusting the tone



■ Compensation of bass sound

N.B. CIRCUIT: Natural Bass Circuit

- The N.B. CIRCUIT effect switches on/off every time the key is pressed.
- Set to on to obtain a more natural bass sound.

STAND BY mode of POWER switch

When the power cord of this system is plugged into an AC outlet, the STAND BY indicator lights up regardless of the ON/OFF setting of the POWER switch. This indicates that a small amount of current is being supplied to the unit to back up the memory contents. This mode is referred to as the Stand By mode. While the STAND BY indicator is lighted, the power of the system can be switched ON/OFF from the remote control unit.

Automatic play operation function associated with input selector keys of amplifier

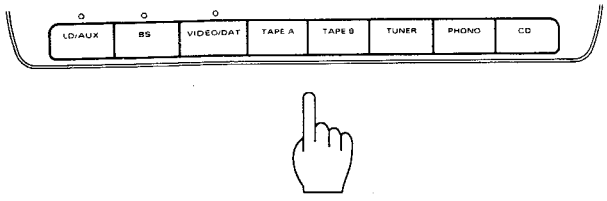
The automatic play operation allows to start playing the selected input source by simply pressing the input selector key (TAPE A, TAPE B, TUNER, CD or PHONO etc.). It also allows to select a correct input selector key on the amplifier by simply starting playback on the desired input source component.

The same operation is also possible with the input selector keys on the remote control unit.

The input source selected at the moment the power is switched ON is the last source (TUNER, CD, etc.) selected before switching the power OFF.

■ Input source switchover

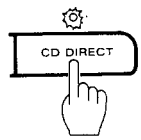
Press the target input selector key



■ Operation of CD DIRECT playback

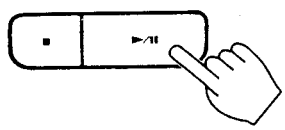
The digital sound of Compact Disc features an ideal reproduction characteristics, and the sound quality provided by CD can be reproduced with least degradation by means of the CD direct playback function.

1 Press the CD DIRECT key.



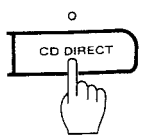
- The CD DIRECT indicator lights up.

2 Play the CD player.



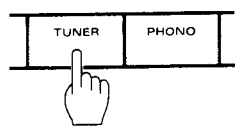
- The CD DIRECT selection is given priority to any other source being selected by the input selector keys.

To cancel the CD DIRECT playback function



Press CD DIRECT key again.

or



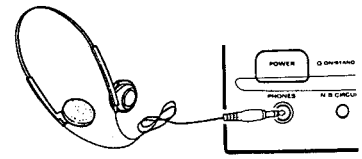
Press an input selector key other than CD

Notes:

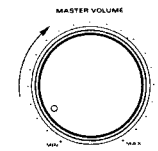
1. During CD DIRECT playback, the tone controls and components connected to the adaptor jacks do not function.
2. During recording, the CD DIRECT key will not function even if pressed.

■ Listening through headphones

1 Insert the headphone plug into the headphone jack.



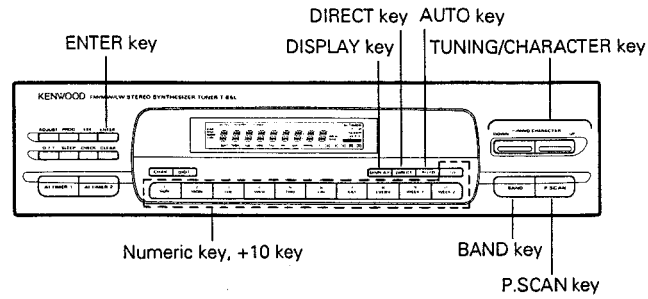
2 Adjust the volume.



- Be sure to minimize the volume before unplugging the headphone plug.

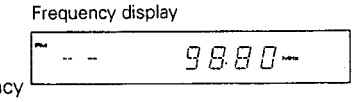
Operation of tuner

■ Receiving broadcast stations and storing them in memory (preset operation)



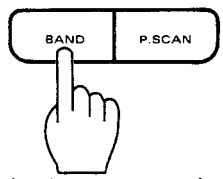
1 Display the frequency display.

Frequency display



- Every time the DISPLAY key is pressed, the displayed contents are switched in order of Frequency → Broadcast station name → Present time → Date (month & day).

2 Select the broadcast band.



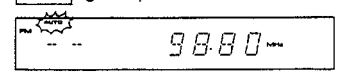
The bands are switched as follows every time the BAND key is pressed.

FM → AM (MW → LW)

- The frequency is displayed for a few seconds when a key associated with tuning is pressed.

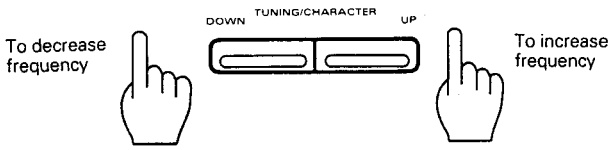
3 Select the tuning mode.

AUTO lights up.



- Press the key to select the auto (AUTO lighted) or manual (not lighted) mode. Normally, select the auto mode (with AUTO lighted).

4 Tune the desired station.

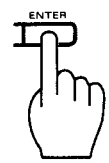


Auto tuning mode	Manual tuning mode
Press once. (Tuning stops automatically when a station is received.)	Press repeatedly, or press and hold, until the desired station is received.

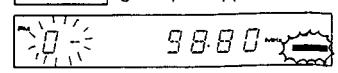
- The TUNED indicator lights up when a station is received.
- Use manual tuning mode when the radio wave is weak and noisy. With manual tuning, FM broadcasts in stereo are always received in monaural.

5 Store the station in preset memory.

① Press the ENTER key.

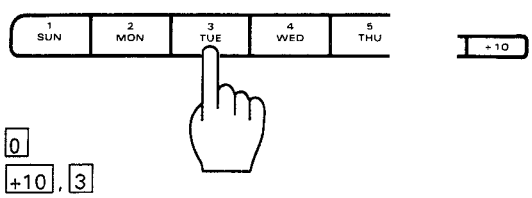


MEMORY lights up for approx. 5 sec.



- Up to 30 stations can be stored in memory irrespective of broadcast band.
- Proceed the steps ② while the MEMORY indicator is lighted.

② Press the numeric key.



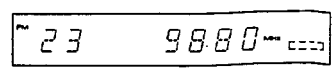
Example

When preset to preset 3 ..... [3]

When preset to preset 10 ..... [+10], [0]

When preset to preset 23 ..... [+10], [+10], [3]

MEMORY goes off.

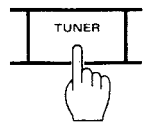


- When a station has previously been preset under the numeric key pressed, the newly preset station replaces the previous station.
- When preset is to be continued, repeat steps 2 to 5.

■ Receiving a preset station

1 Set to Tuner.

Select with the input selector key.

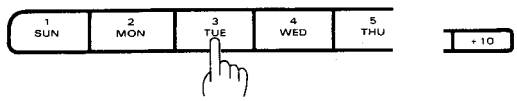


2 Selected the desired station.

Press the numeric key under which the station is preset.

Example

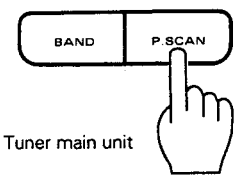
When receiving preset 29 ... [+10], [+10], [9]



- The frequency of the station received will be displayed.

■ Listening to all preset stations in sequence (PRESET SCAN)

Press the P.SCAN key.



Tuner main unit

Remote control unit

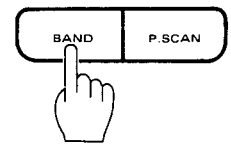
- With the key on the tuner main unit, preset stations are received in order of 1 → 2 ... 10 ... 20 ... 30 → 1 ... every time the key is pressed.
- With the key on the remote control unit, preset stations are received in order of 1 → 2 ... 10 ... 20 ... every time the [△] key is pressed, or in order of 30 → 29 ... 20 ... 10 ... every time the [▽] key is pressed.

■ Direct tuning of radio station

If you know the frequency of the desired station, it can be received directly by inputting the frequency using the numeric keys.

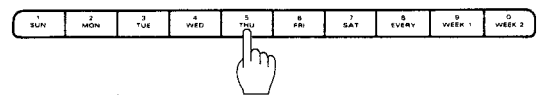
1 Select the broadcast band.

- One of FM or AM (MW/LW).



2 Press the DIRECT key.

3 Input the frequency of the desired station by pressing the numeric keys.

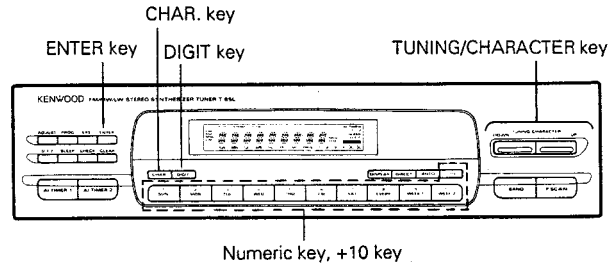


Example of input

Can also be done with remote control numeric key.

Desired station	Order of pressing numeric keys	
FM 90 MHz	[9], [0], [0]	(100 kHz space)
	[9], [0], [0], [0]	(50 kHz space)
FM 102.5 MHz	[1], [0], [2], [5]	(100 kHz space)
	[1], [0], [2], [5], [0]	(50 kHz space)
AM (MW) 810 kHz	[8], [1]	(10 kHz space)
	[8], [1], [0]	(9 kHz space)
AM (MW) 1260 kHz	[1], [2], [6]	(10 kHz space)
	[1], [2], [6], [0]	(9 kHz space)

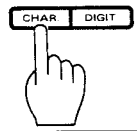
- If you commit a mistake in the input of numeric keys, press the [CLEAR] key, and re-start the input from the beginning.



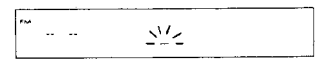
■ Display station names

Station names composed of up four digits of characters and/or symbols can be displayed on the tuner display.
Example: To receive FM 93.4 MHz, input its name with characters "CBE", and preset them under numeric key [3].

1 Receive FM 93.4 MHz, and enter the character input mode.

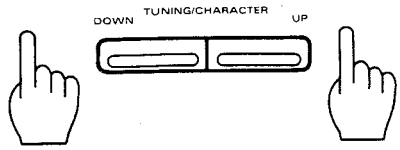


Blinks.

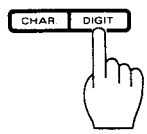


2 Select the characters to be displayed with that station.

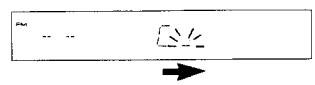
① **Display the desired character.**



② **Establish the selection.**



Blinking digit changes to the next digit.



③ **Repeat steps ① and ② until all of the required characters have been input.**

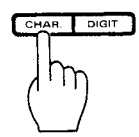
- To select "C", press the UP segment three times.
- To insert a space, simply press the DIGIT key.

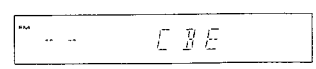
Types of characters that can be input

After having pressed the CHAR. key, press the TUNING/CHARACTER key to display the characters available.

A B C D .... X Y Z 0 1 2 ...
└Blank position (Blank space)
/ * − + 9 8 7 ...

3 End the character input.



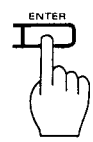


- The character input also terminates automatically when fourth character has been input.
- Press the [CHAR.] key to terminate character input with three characters or less.

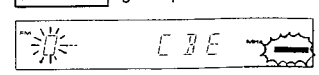
In case you commit an input mistake, press the [CLEAR] key and re-start from the first digit.

4 Preset them under key [3].

① **Press the ENTER key.**

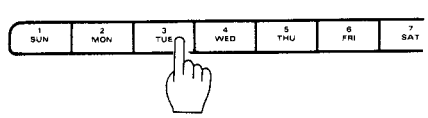


[MEMORY] lights up.

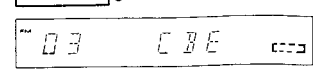


- Proceed the step ② while the MEMORY indicator is lighted.

② **Press numeric key [3].**



[MEMORY] goes off.

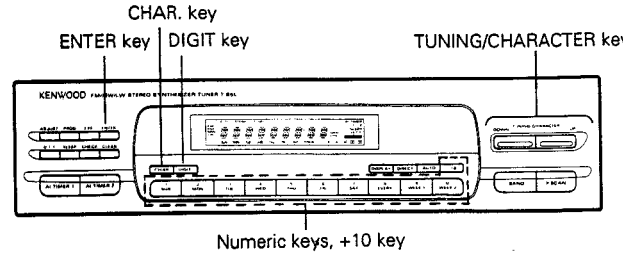


(End of preset)

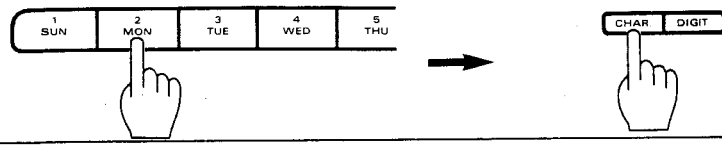
Last channel memory
When the tuner's band selector is switched or when the amplifier's input selector is switched from another source to TUNER, the last received station is recalled for each of FM, AM (MW, LW) when the amp power is switched ON.

■ Changing a station name

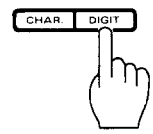
Example: To change station name "FHN8" preset with AM (MW) 810 kHz frequency under key [2] to "FEN".



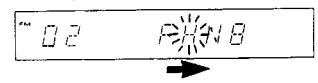
1 Receive preset station of [2] by preset tuning, and enter the character input stand-by mode.



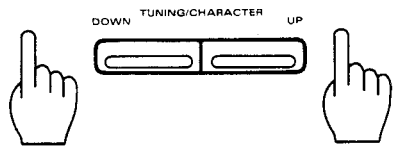
2 Move the blinking digit to the second digit.

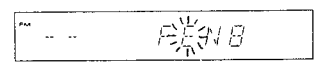


Blinking digit change to the next digit.

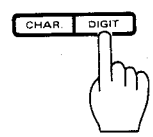


3 Select "E" with the TUNING/CHARACTER key.

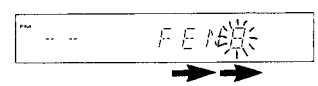




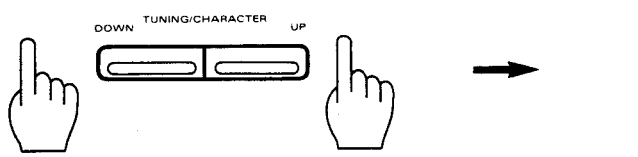
4 Move the blinking digit by two digits.

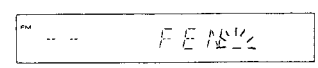


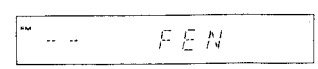
Press twice.



5 Select the blank with the TUNING/CHARACTER key.





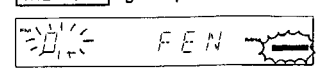


- The character input terminates automatically when fourth character has been input.

6 Preset the new name under numeric key [2].

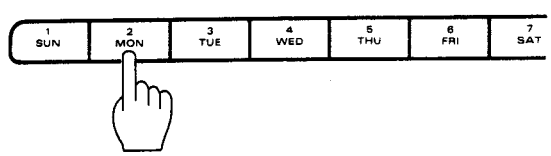
① Press the ENTER key.

[MEMORY] lights up.

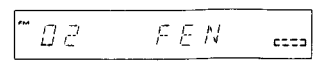


- Proceed the step ② while the MEMORY indicator is lighted.

② Press numeric key [2].

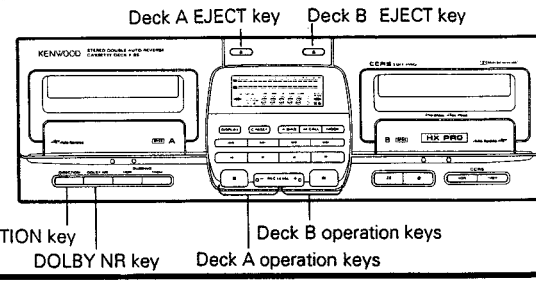


[MEMORY] goes off.



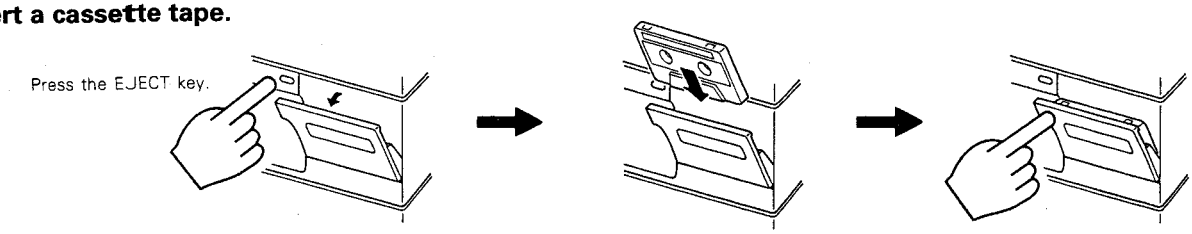
(End of change)

Playback operation of cassette decks



■ To play back a tape

1 Insert a cassette tape.

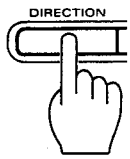


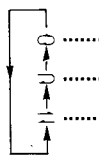
- The type of tape, Normal, Chrome or Metal, is detected and set automaticlaly.
- Be sure to remove tape slack before insertion.

Close securely
by pressing upper inside.

2 Determine the playback conditions.

① Select the playback mode.





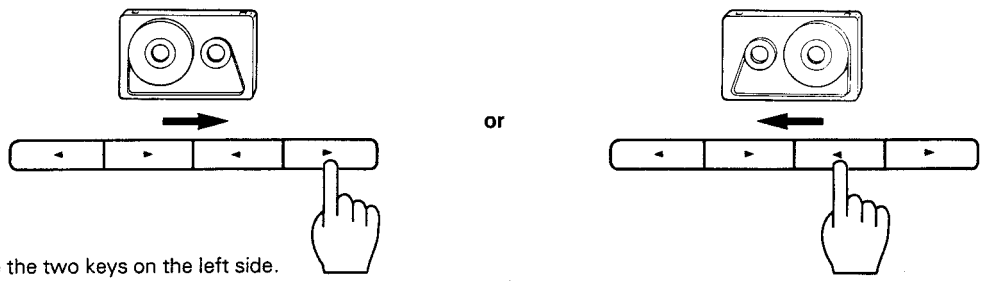
.....To play both sides endlessly.
.....To stop after playing both sides of tape.
.....To stop after playing one side of tape.

The indication change every time the key is pressed.

② Select the Dolby NR mode.
Select according to the tape to be played.

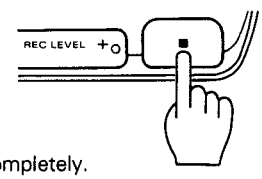
The indication changes every time the key is pressed.

3 Start playback.



- For playback of deck A, use the two keys on the left side.

To stop playback



- Do not press the EJECT key until the tape has stopped completely.

Dolby noise reduction system

The Dolby noise reduction system was developed to reduce the tape hiss noise generated during playback.
The optimum effect of the Dolby NR system is obtained when the same type NR system is used for both recording and playback. If a different type NR system is used, playback is not performed correctly. Make sure that the same type noise reduction system is used for both recording and playback.

Dolby B NR

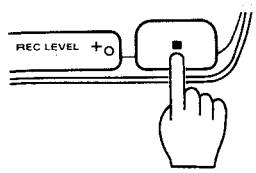
The most popular noise reduction system used in home audio components. Usually, Dolby NR system corresponds to B NR.

Dolby C NR

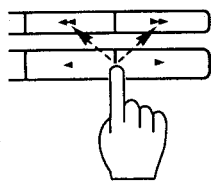
Dolby C NR offers improved noise reduction performance over that of theDolby B NR. It features a superior noise reduction effect. Use Dolby C NR to record or playback with this unit. It is recommended that tapes recorded with the Dolby NR system be marked "B" or "C", so that they can easily be distinguished.

■ To wind the tape at high speed

1 Stop playback.



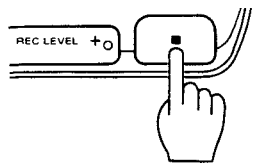
2 Press the ◄◄ key or ►► key.



◄◄ : Fast tape winding in the ⬅ direction

►► : Fast tape winding in the ➡ direction

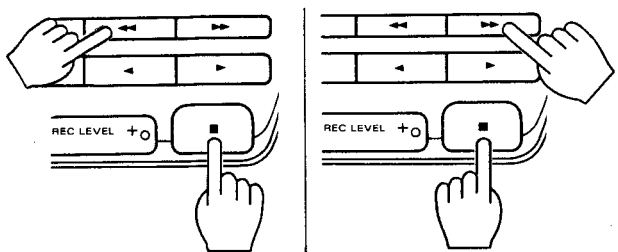
To stop fast tape winding



■ Zero-stop operation

This operation is not available from the remote control unit.

Press simultaneously.



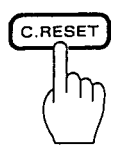
Fast winding in the ⬅ direction

Fast winding in the ➡ direction

● Tape is wound until counter reading near "0000" where it stops.

To reset the counter

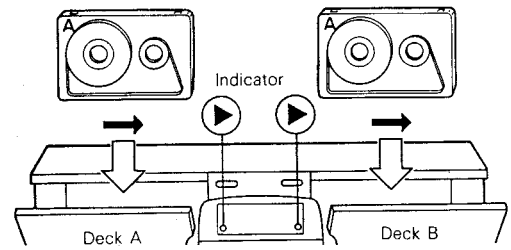
Before beginning to record (playback), press the C.RESET key to establish 0000. If you want to terminate recording or playback in the middle of a tape, write down the tape number. It will serve as a guide for finding the proper tape location when you want to continuing recording later on.
The zero stop function can be used to return the tape to the starting point of recording or playback.



■ Relay playback

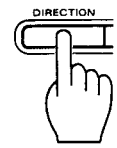
This function plays back the tapes in both decks A and B continuously and repeatedly.

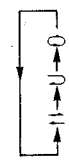
1 Insert tapes.



● Tapes are played in the directions indicated by their respective indicators on the display.

2 Select the playback mode.





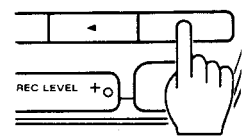
The indication changes every time the key is pressed.

⇄ ... Relay playback of both sides of tapes in decks A and B is repeated.

⇄ ... Relay playback of only one side of tapes in decks A and B is repeated.

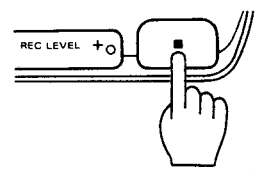
● Relay playback cannot be performed if the DIRECTION is set to "⇄ ".

3 Start playback.



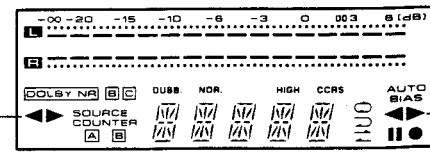
● The playback starts with the deck the play key of which is pressed.

To stop playback



Tape transport direction indicators

The ◄► indicators show the direction of tape transport in its playback or recording. The direction selected when the tape was stopped the last time is maintained even after the power is turned off. When the tape is started automatically by the automatic play operation, etc., the transport starts with the direction shown by the direction indicator. If you want to change the transport direction for the next time the power is trurned on, press the play key of the opposite direction before turning power off.



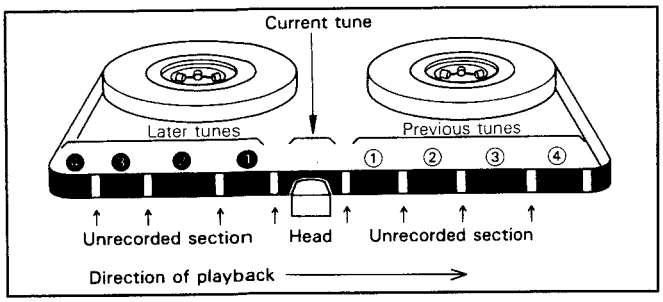
Deck A direction indicators

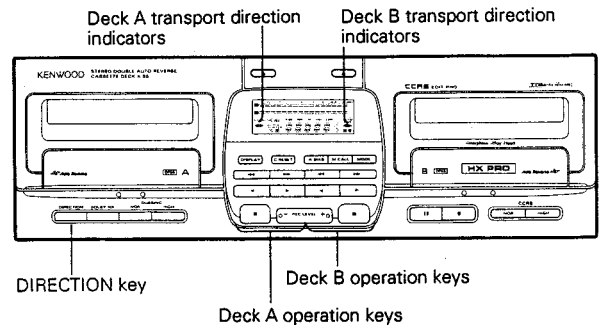
Deck B direction indicators

DPSS operation

The DPSS (Direct Program Search System) enables the following convenient operations according to the instructions of the operation keys (these operation are however not available on both decks simultaneously). The DPSS functions functions are based on the detection of non-recorded spaces of 4 seconds or more between tunes.

1. **Skip play:** **By specifying a tune located several tunes beyond (or behind) the tune being played, skips tunes between the current tune and the selected tune and starts playback from the beginning of the selected tune. Up to 16 tunes can be skipped in Skip Search.**
2. **Single-tune repeated playback:** **One single tune is played back repeatedly up to 16 times.**
3. **Rewind & Play:** **Rewinds the tape to the beginning and starts playback from there.**
4. **Dash & Play:** **If a non-recorded space of more than 10 seconds is detected during playback, that space will be skipped by fast forward tape winding.**

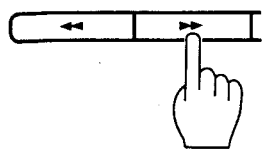



Deck A transport direction indicators
Deck B transport direction indicators
DIRECTION key
Deck B operation keys
Deck A operation keys

■ Skip play operation

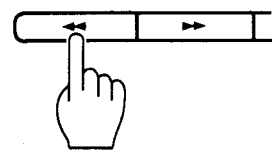
The example below shows the case in which the direction indicated by the tape transport direction indicator is ►. If the direction indicated by the tape direction indicator is ◄, always press the keys for the opposite directions to those shown in the illustrations below.

To play a tune located immediately after the tune being played



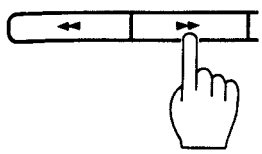
Press once during the playback.

To play the tune being played from the beginning



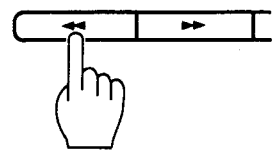
Press once during the playback.

To play a tune located 4 tunes beyond



Press 4 times during the playback.

To play the tune located 4 tunes behind



Press 5 times during the playback.

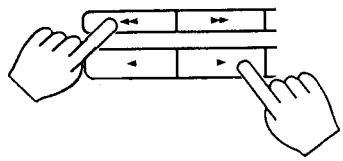
The DPSS will not function properly with the following types of tapes.

- Tapes containing spaces of 4 seconds or more, such as conversations and speeches.
- Tapes containing extremely low levels or non-recorded spaces in the middle of tunes, such as classical music.
- Tapes containing recording or large noise between tunes,.
- Tapes containing spaces of less than 4 seconds between tunes.
- Tapes recorded with low recording level.
- Tapes recorded using Cross-fade recording.

■ Rewind & Play operation

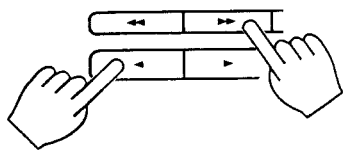
This operation is not available from the remote control unit.

Direction of tape diection indicator: ►



Press simultaneously.

Direction of tape diection indicator: ◄



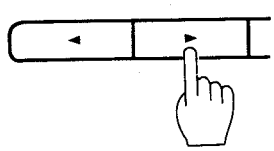
Press simultaneously.

■ Single-tune repeated playback operation

1 Play the tune to be repeated.

2 Press the play key of the same direction as the current tape transport direction.

When direction of tape diection indicator is ►

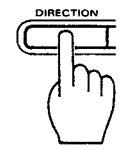


- Normal playback resumes after repeating the same tune for 16 times.

■ Dash & Play operation

The Dash & Play skips long non-recorded spaces automatically as the tape is played.
This operation is not available from the remote control unit.

1 Determine the playback mode (conditions).



The indication changes every time the key is pressed.

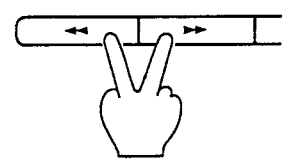
... Two sides are repeated 8 times, after which playback stops.

... Two sides are repeated only once, after which playback stops.

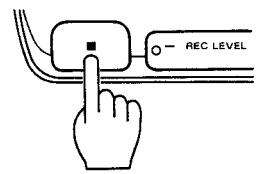
.. One side is repeated 8 times, after which playback stops.

- In case the DIRECTION key is set to " ⊃ " and tapes are inserted in both of the decks, when a deck finishes Dash & Play, the other deck starts Dash & Play for 16 times, after which it stops.

2 Press the ◄◄ and ►► keys simultaneously.



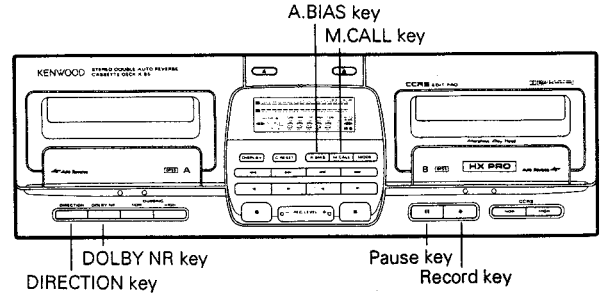
To cancel the playback above in the middle



- Playback is stopped.

Recording operation on cassette deck (Deck B only)

The cassette deck incorporates the Dolby HX Pro headroom extension function and auto-bias function to provide a recording with superior high-frequency characteristics.

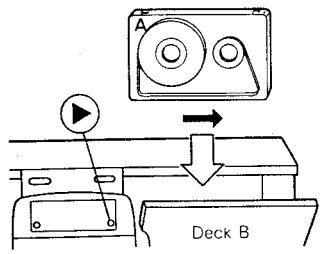


■ Ordinary recording

1 Set up the cassette deck.

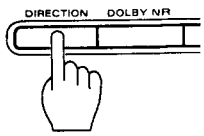
① **Insert a tape in deck B.**

Tape to be recorded onto Deck B



② **Set the tape transport direction.**

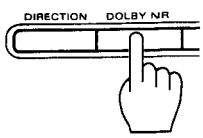
③ **Select one-side or two-side recording.**



: Two-side recording

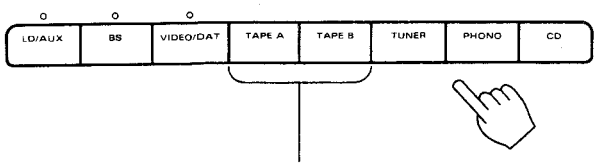
: One-side recording

④ **Select the Dolby NR mode.**



DOLBY → B → C → goes off.

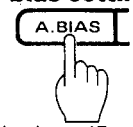
2 Select the source to be recorded.



These cannot be selected as the recording source.

- Press the DISPLAY key to check the recording source.
- When the equallzer effect is required, press the EFFECT key of the graphic equalizer to ON. For details, read the instruction manual provided with the graphic equalizer.

3 Activate the auto-bias setting.



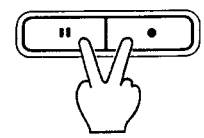
- The optimum bias is set in about 45 seconds, after which the deck enters the stop mode.
- To cancel the auto-bias adjustment operation in the middle, press the stop key.
- Recording is possible even when the auto-bias setting is omitted.
- Once set, the same auto-bias setting can be recalled even after it has been canceled by simply pressing the M.CALL key.

4 Set the recording level.

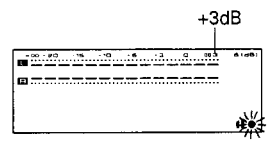
①**Play a music source.**

②**Enter the record-pause mode.**

Press the two keys simultaneously.



③**Adjust the recording level.**



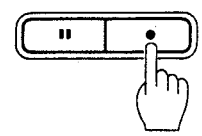
- Adjust so that segments around the +3 dB segment of the peak level meter light up at times.

④ **Stop playing the source.**

5 Start recording.

① **Play the music source from the beginning.**

② **Press the ● key.**



- Recording starts.
- The deck enters the stop mode automatically when the tape has been recorded till the end.

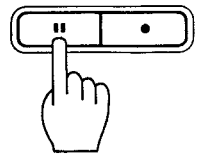
Notes:

1. During auto-bias adjustment, the keys are defeated except for the ►►, ◄◄ and ■ keys of deck A and ■ key of deck B.
2. If the amount of remaining tape is small, the auto-bias adjustment may be canceled in the middle and tape stopped at that position.
3. The auto bias level is canceled when the EJECT key of Deck B is pressed.

Auto-bias function

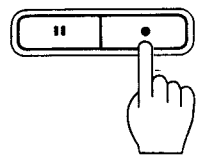
The tapes categorized as "normal" or "chrome" tape vary widely in the characteristics from popular to high-class types. Therefore, this system is equipped with the auto-bias adjustment function for exclusive use with normal and chrome tapes so that optimum recording can always be obtained with any types of normal and chrome tapes. It is recommended to use the auto-bias function when using a normal tape or chrome tape.

■ To pause recording temporarily



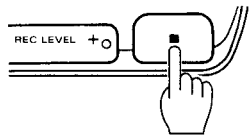
● The ❚❚ indicator lights up.

To resume recording



■ To stop recording

1 Press the stop key of B deck.



Press once.

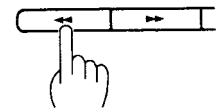
2 Stop playing the source component.

■ To re-start recording after mistake

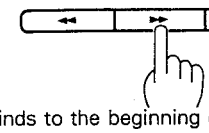
Convenient for re-recording in the middle of a music piece.
A non-recorded space of 4 seconds or more should be reserved before the position where recording was started.

1 Stop recording and rewind tape.

During recording in the ► direction:



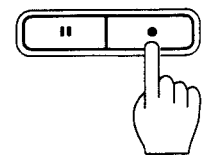
During recording in the ◄ direction:



● Recording stops. The tape rewinds to the beginning of the music piece which was just being recorded. Then the tape goes forward so as to make a blank space of about 2 seconds after the previous music piece, and operation.

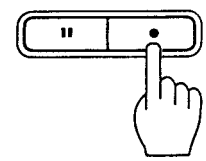
2 Re-start recording.

①Press the ● key twice.



● A non-recorded space of 4 seconds is reserved on tape, then the tape transport stops.

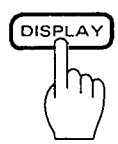
②Press the ● key once.



● Recording starts.

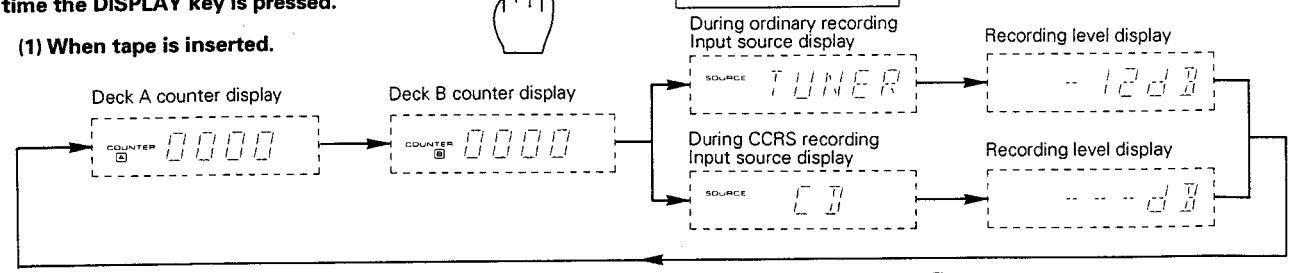
Tape counter display

The displayed contents change every time the DISPLAY key is pressed.

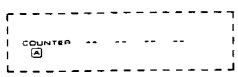


The source which is being input to the amplifier and which can be recorded is displayed.

(1) When tape is inserted.



(2) When tape is not inserted.



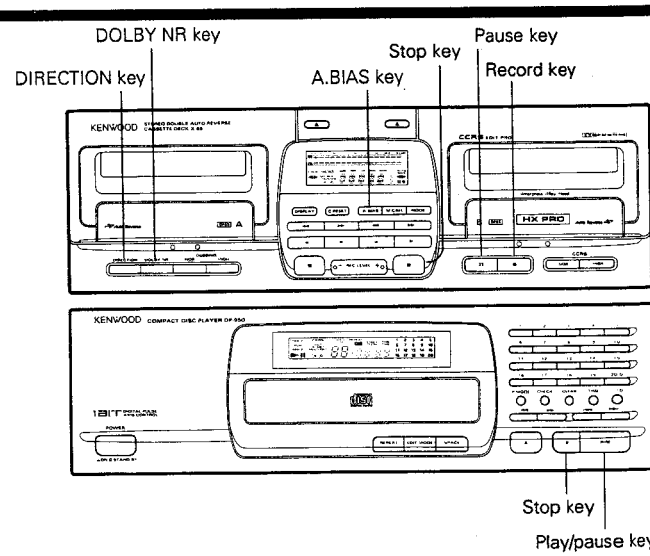
When the REC LEVEL key is pressed, the recording level is displayed for about 5 seconds regardless of the DISPLAY key setting. Although the standard recording level has been set for each input source of the amplifier, the standard level can be varied by pressing the REC LEVEL key.
The standard level is not displayed during CCRS recording.

Recording with Dolby HX Pro

When recording on B deck, the Dolby HX Pro headroom extension function automatically operates to provide a recording with superior high-frequency characteristics.

What is Dolby HX Pro?

In ordinary recording using high-frequency biasing, the high-frequency bias current, which should be constant, is increased with some recording sources due to the high-frequency component contained in the music, etc. This increase affects the recording characteristics with distorted high frequencies and degraded dynamic range and frequency response.
The Dolby HX Pro circuit detects the high-frequency component contained in the music source being recorded, and reduces excessive bias current to make it constant. As a result, the recording characteristics of high frequencies are drastically improved, and the improved high-frequency reproduction can also be enjoyed even when the tape is played on tape decks which are not equipped with circuit.

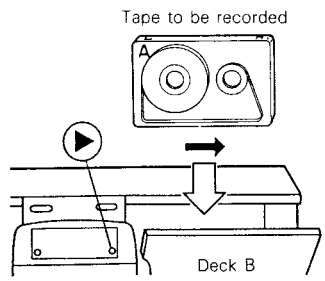


■ Synchro recording of CD playback

The cassette deck and CD player can be started simultaneously.

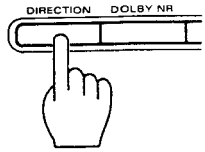
1 Make the preparations for recording.

① **Insert the cassette tape in deck B.**



② **Set the tape transport direction.**

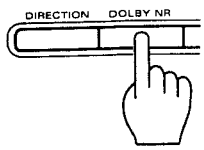
③ **Select the tape side(s) to be recorded.**

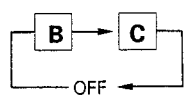


: Two-side recording

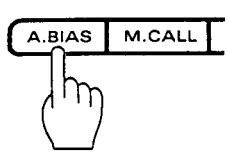
: One-side recording

④ **Select the Dolby NR mode.**





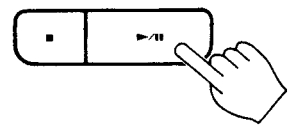
2 Activate the auto-bias setting.



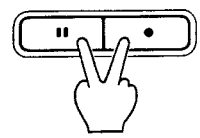
- After about 45 seconds, setting is completed.
- When you want to continue using the same type of tape, press the M.CALL key and the same bias value as previously can be set immediately.

3 Adjust the recording level.

① **Playback CD.**

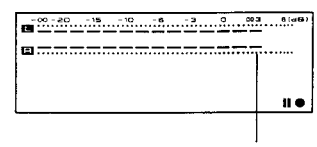


② **Enter the record-pause mode.**



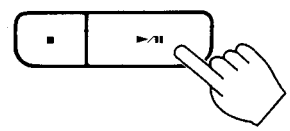
Press the two keys simultaneously.

③ **Adjust the recording level.**



④ **Make the CD stop temporarily.**

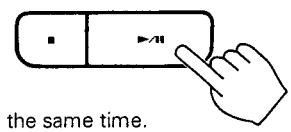
As a result the indicator lights up to + 3 dB on occasion.



4 Start playing the CD.

① **Press the numerical keys for the number of the music piece to be recorded.**

② **Start playback.**



- Tape recording starts at the same time.
- When the CD player has completed playback, the cassette deck also stops recording and enters the stop mode.

To pause

Press the ►/II key of the CD player.

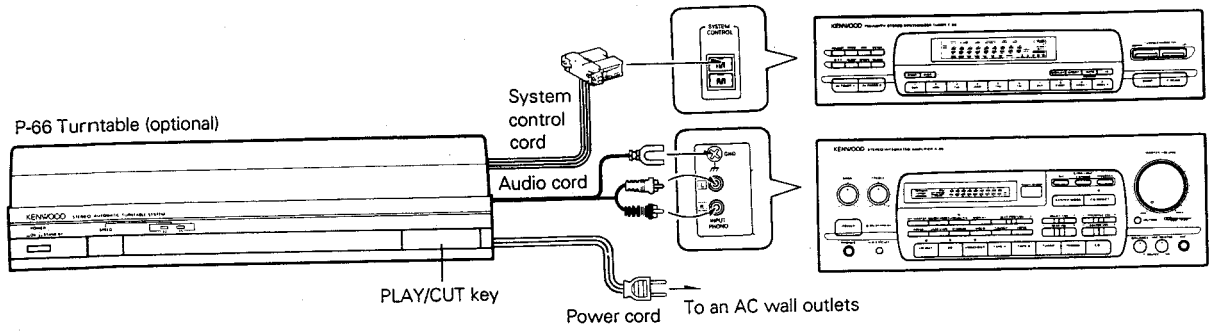
To resume recording

Press the ►/II key of the CD player.

To stop recording

Press the ■ key of the CD player.

- When the ■ key on the cassette deck is pressed, the cassette deck enters the stop mode, but the playback of CD does not stop.



■ Synchro recording of analog disc play

The cassette deck and turntable can be started simultaneously. This cannot be done with remote control.

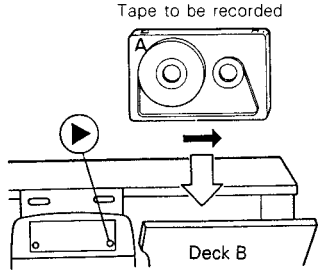
Confirm that each cord is connected securely.

1 Make the preparations for recording.

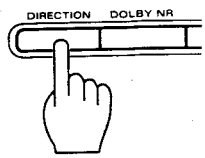
① **Insert the cassette tape in deck B.**

Tape to be recorded

② **Set the tape transport direction.**



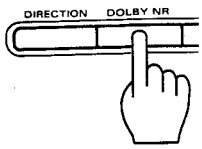
③ **Select the tape side(s) to be recorded.**

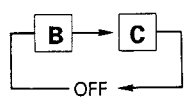


: Two-side recording

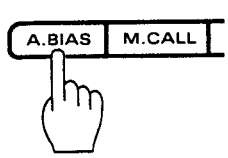
: One-side recording

④ **Select the Dolby NR mode.**





2 Activate the auto-bias setting

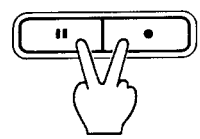


- After about 45 seconds, setting is completed.
- When you want to continue using the same type of tape, press the M.CALL key and the same bias value as previously can be set immediately.

3 Adjust the recording level.

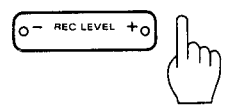
① **Playback analog disc.**

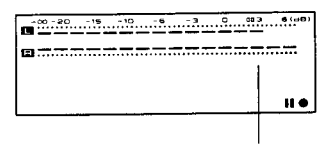
② **Enter the record-pause mode.**



Press the two keys simultaneously.

③ **Adjust the recording level.**



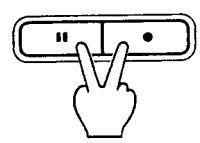


As a result the indicator lights up to +3dB on occasion.

④ **Stop the record.**

- The cassette deck returns to stop condition.

4 Enter the record-pause mode.



Press the two keys simultaneously.

5 Start playing the analog disc.

Press the PLAY/CUT key of the turntable.

- Tape recording starts at the same time.
- When playback of the turntable is completed, the cassette deck stops recording and terminates.

To stop midway during operation,

Press the PLAY/CUT key of the turntable.

- When the ■ key of the cassette deck is pressed, the cassette deck stops but the turntable does not stop.

Recording of CD playback (CCRS)

The CCRS (Computer-controlled CD Recording System) makes the following convenient recordings possible by setting the optimum recording level and recording bias for the specific CD to be recorded and starting recording automatically. (CCRS recording is available only with Deck B.)

FADE recording ..... **CCRS starts recording the CD tracks from the first track in order. When the end of one tape side is reached during recording, fade-out occurs there, and recording is continued on the other side of tape.**

ERASE recording ..... **When the end of one tape side is reached during recording, the track which should end in the middle is erased, and the recording of the other side of tape is started from the beginning of that track.**

CROSS-fade recording ..... **The beginning and end of each track is faded in/out to create a music tape without interruption between tunes.**

Normal EDIT recording ..... **When the recording time of the tape is specified first, the order of the CD tracks are edited so that no track is interrupted at the end of each side of tape. The maximum number of tracks that can be edited is 20.**

AI EDIT recording ..... **When the total playing time of a CD exceeds the recording time of tape, all tracks can still be accommodated in the tape by fading out the end of each track.**

MULTI EDIT recording ..... **Tracks on multiple CDs can be edited and accommodated in a single tape. The usable editing functions include the FADE and CROSS-fade recording functions.**

CCRS double-speed recording ..... **Records CD at twice the normal speed. Fade-out edit recording is possible, but the use of Dolby NR is not possible.**

CCRS recording functions are available only when the KENWOOD DP-950 CD player is connected to the system through the system control cord.

CCRS (Computer-controlled CD Recording System)

When the CCRS key is pressed, the following operations occur automatically and recording of CD starts after them.

1. The CD is played and its peak level is sampled from the level used when the disc was recorded.
2. The optimum recording level for that disc is determined from the sampled peak level and the cassette deck is set accordingly.
3. The cassette deck sets automatically the optimum bias for the tape used in recording.
4. The recording preparations detailed above are completed in about 90 seconds, after which actual recording starts.
5. When the recording is completed (when the CD player ends playback or when the tape has been recorded), both the cassette deck and CD player enter the stop mode.

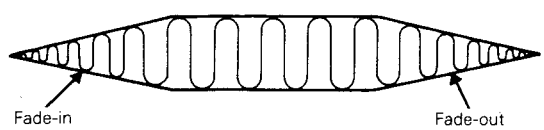
- The set recording level and auto bias level are maintained while the CCRS and AUTO BIAS indicators are lighted.
- The recording level is canceled when the open/close key of the CD player is pressed, the auto bias level is canceled when the EJECT key of Deck B is pressed, and both are canceled if the power is turned off.

Display during CCRS operation

	Cassette deck display	CD player display
During automatic recording level setting	CCRS Quick blinking	
During auto bias setting	CCRS AUTO BIAS	
During recording	CCRS AUTO BIAS Slow blinking	
End of recording	CCRS AUTO BIAS	

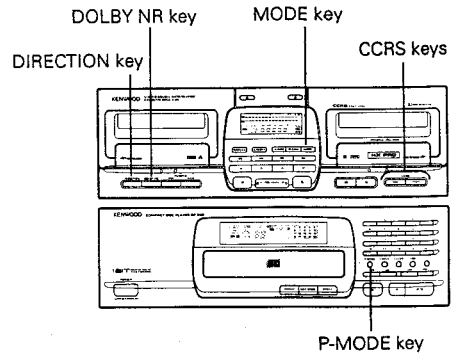
Fade-in and fade-out

Fade-in refers to a gradual increase of volume from the minimum to normal level when starting to play music.
Inversely, fade-out refers to a gradual decrease of volume from the normal to minimum level at the end of music.



CCRS double-speed recording

CD and cassette deck are both played at twice the normal speed and recorded, making it possible to half the time required for recording. Since the CD is played in double speed in this case, the recorded content cannot be enjoyable as music even though it can be monitored from the speakers.
In double-speed recording, tunes are recorded onto the tape without Dolby NR effect. So playback the tape without Dolby NR effect.



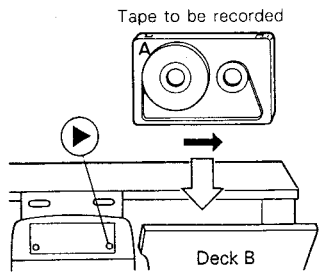
■ FADE recording

This function allows to provide fade-out and fade-in at the location where the tape is reversed.

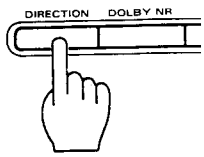
1 Set up Deck B ready for recording.

① **Insert the cassette tape.**

② **Set the tape transport direction.**



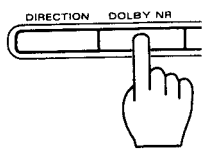
③ **Select the tape side(s) to be recorded.**

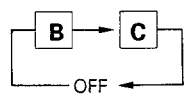


: Two-side recording

: One-side recording

④ **Select the Dolby NR mode.**

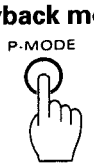




2 Select the CD input.

3 Insert the disc in the CD player.

4 Select the CD playback mode.

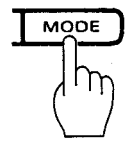


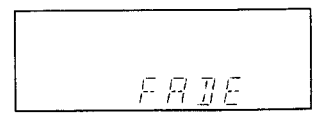
TRACK : For recording in order of track Nos.

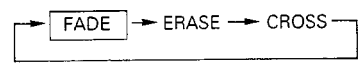
PGM : For recording in order of programming.

5 Select the FADE recording mode.

Press the MODE key.



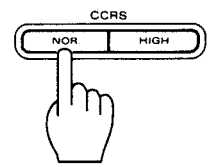




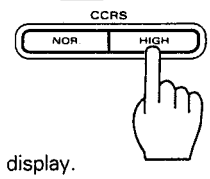
The mode changes every time the key is pressed.

6 Press the CCRS key.

Normal-speed recording

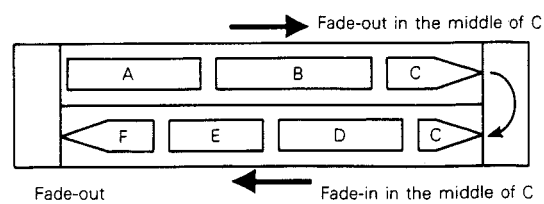


Double-speed recording



● HIGH or NOR. is displayed in the display.

Recording occurs as shown below.



Notes:

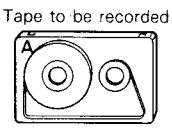
1. When the CCRS key is pressed during CD play, the playback is interrupted and CCRS setting operation starts.
2. The CCRS recording makes it unnecessary to adjust the recording level manually.
3. The CCRS searches the peak level on a CD in a limited period of about 60 seconds. Therefore, it could happen that the optimum level cannot be adjusted, through it is a very rare case.
4. If the length of a track on the CD is extremely long such as with a classical music, the CCRS cannot be used because the music cannot be fit in one side of tape. In such a case, the CD should be recorded referring to "Synchro recording of CD playback".
5. When the transport direction indicator of the cassette deck is " ", the tape end processing occurs only on side A of tape.
6. When the remaining length of a tape is short, the erase recording may be carried out at the end of the tape.
7. When a music piece at the end of the tape is to fade out, if the space between this piece and the previous piece is small, a portion of the end of the previous pieces may also be erased. In such cases, set the playback mode of the CD player to PGM and press the SPACE key.

■ ERASE recording

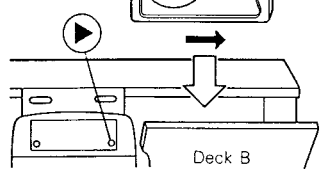
When a track should end in the middle at the location where the tape is reversed, this function allows to erase automatically the recording of that track and start the recording of the other side with that beginning of the track.

1 Set up Deck B ready for recording.

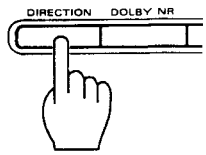
① **Insert the cassette tape.**



② **Set the tape transport direction.**



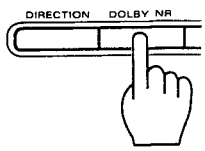
③ **Select the tape side(s) to be recorded.**

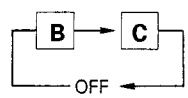


: Two-side recording

: One-side recording

④ **Select the Dolby NR mode.**





2 Select the CD input.

3 Insert the disc in the CD player.

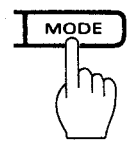
4 Select the CD playback mode.

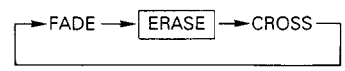
TRACK : For recording in order of track Nos.

PGM : For recording in order of programming.

5 Select the ERASE recording mode.

Press the MODE key.

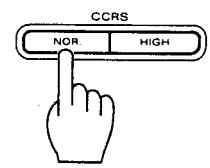




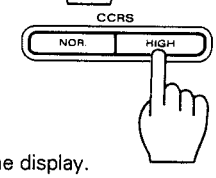
The mode changes every time the key is pressed.

6 Press the CCRS key.

Normal-speed recording

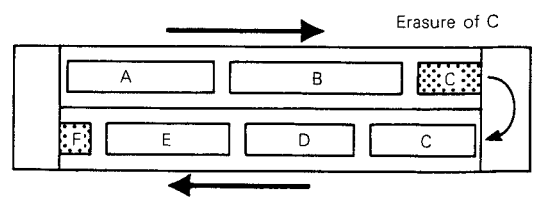


Double-speed recording



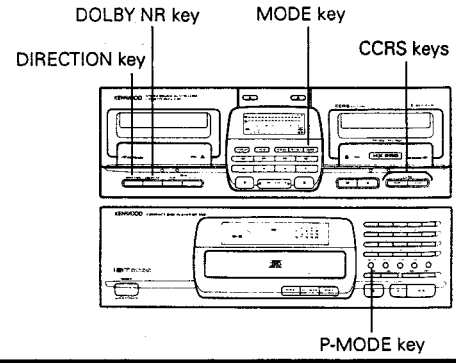
● HIGH or NOR. is displayed in the display.

Recording occurs as shown below.



Notes:

1. When the CCRS key is pressed during CD play, the playback is interrupted and CCRS setting operation starts.
2. The CCRS recording makes it unnecessary to adjust the recording level manually.
3. The CCRS searches the peak level on a CD in a limited period of about 60 seconds. Therefore, it could happen that the optimum level cannot be adjusted, through it is a very rare case.
4. If the length of a track on the CD is extremely long such as with a classical music, the CCRS cannot be used because the music cannot be fit in one side of tape. In such a case, the CD should be recorded referring to "Synchro recording of CD playback".
5. When the transport direction indicator of the cassette deck is "⇄", the tape end processing occurs only on side A of tape.
6. When the tune being recorded at the end of the tape is to be erased, the ending part of the previous tune may also be erased if the space between the tunes is short. In such a case, record it after pressing the SPACE key on the CD player.



■ CROSS-fade recording

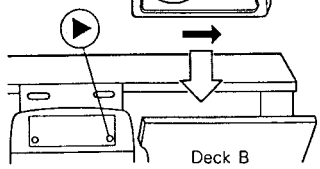
This function allows to fade in/out the beginning and end of each track to create a music tape without interruption between tunes.

1 Set up Deck B ready for recording.

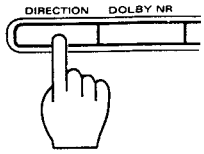
① **Insert the cassette tape.**

Tape to be recorded

② **Set the tape transport direction.**



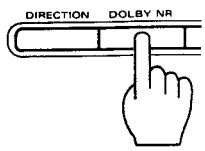
③ **Select the tape side(s) to be recorded.**

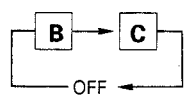


: Two-side recording

: One-side recording

④ **Select the Dolby NR mode.**





2 Select the CD input.

3 Insert the disc in the CD player.

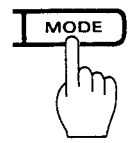
4 Select the CD playback mode.

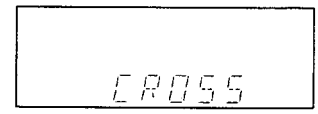
TRACK : For recording in order of track Nos.

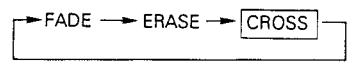
PGM : For recording in order of programming.

5 Select the CROSS-fade recording mode.

Press the MODE key.

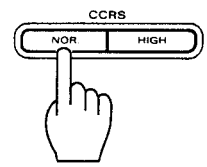






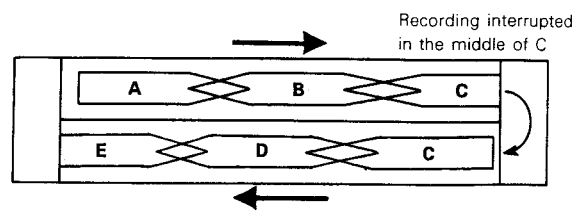
The mode changes every time the key is pressed.

6 Press the NOR. key of CCRS.



● NOR. of the display component lights up.

Recording occurs as shown below.



● Tape end does not fade out.

Notes:

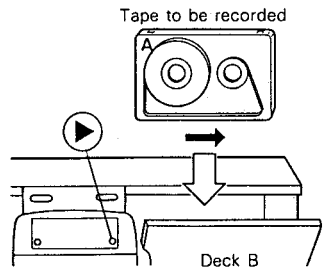
1. When the CCRS key is pressed during CD play, the playback is interrupted and CCRS setting operation starts.
2. The CCRS recording makes it unnecessary to adjust the recording level manually. For the music whose level difference between high and low is large, such as a classical music, the recording level is sometimes set to low.
3. The CCRS searches the peak level on a CD in a limited period of about 60 seconds. Therefore, it could happen that the optimum level cannot be adjusted, through it is a very rare case.
4. If the length of a track on the CD is extremely long such as with a classical music, the CCRS cannot be used because the music cannot be fit in one side of tape. In such a case, the CD should be recorded referring to "Synchro recording of CD playback".
5. If the beginning or end of a track is originally faded-in/faded-out, the blank between the tracks may be longer when CROSS-fade recorded.
6. The cross-faded parts of some tunes may not be clear. In such a case, record with another edit recording.

■ Normal EDIT recording

This function allows to edit, base on the recording time of the tape specified, the order of the CD tracks so that no track is interrupted at the end of each side of tape.

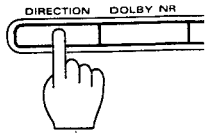
1 Set up Deck B ready for recording.

① **Insert the cassette tape.**



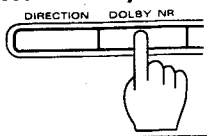
② **Set the tape transport direction.**

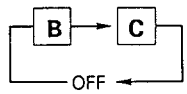
③ **Select the tape side(s) to be recorded.**



: Select two-side recording.

④ **Select the Dolby NR mode.**



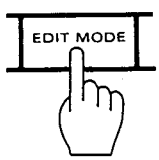


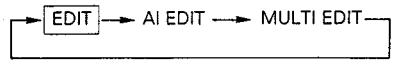
2 Select the CD input.

3 Insert the disc in the CD player.

- When you wish to program tunes, carry out the programming before step 4.

4 Select the EDIT mode with the EDIT MODE key of the CD player.





The mode changes every time the key is pressed.

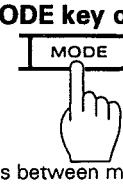
- Proceed to the next step within 8 seconds after setting EDIT. If 8 seconds have elapsed, select the EDIT mode again.
- The CD playback mode is set automatically to PGM.
- When using the SPACE key, keep it depressed from the time you press the EDIT MODE key until you enter the tape time.

5 Input the two-way recording time of the tape.

Use the numeric keys of the CD player.
C-60 tape: Press +10 6 times, and 20/0 once.
C-46 tape: Press +10 4 times, and 6 once.

- 46, 54, 60 or 90 can also be selected every time the TIME key is pressed. In this case, press the EDIT MODE key again to establish the input.
- Tracks are edited automatically to fit sides A and B, and the end of editing is indicated when the EDIT indicator changes from blinking to continuous lighting.
- If a program containing a few tracks has been programmed previously, these tracks can be recorded in priority.
- When the EDIT MODE key is pressed again while EDIT is lighted, "SHUFFLE" appears on the display and re-editing of tracks is performed.

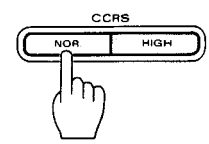
6 Select the mode with the MODE key of the cassette deck.



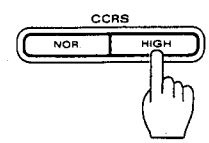
- Normal edit recording takes place when you select FADE or ERASE.
- When you select CROSS, the intervals between music pieces are linked by overlapping of fade out and fade in so that edit recording with no breaks between pieces takes place. In the CROSS mode, the double-speed recording is not possible.

7 Press the CCRS key.

Normal-speed recording

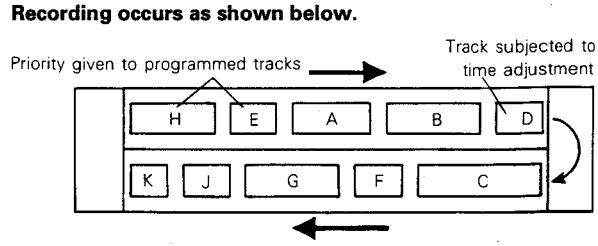


Double-speed recording



- HIGH or NOR. is displayed in the display.

Recording occurs as shown below.



Tracks are recorded basically according to their numbers, but some tracks are replaced with tracks subjected to time adjustment.

- The CD player and cassette deck enter the stop mode automatically after the completion of recording.

Notes:
1. When the time entered on CD player is longer than the recording tape, the music piece at the tape end fades out if FADE has been selected with the MODE key on the cassette deck. It becomes erased if ERASE has been selected. Confirm that the input time and the tape time are matched accurately.
2. Edit operation does not occur if a track No. 44 or more has been programmed.
3. Repeat playback is not available.

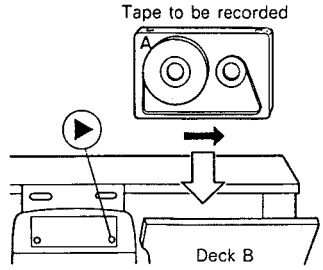
■ AI EDIT recording

When the total playing time of a CD exceeds the recording time of tape, this function allows to accommodate all tracks in a tape by cutting the end of each track by means of fade out. It is also possible to specify the important tracks that must not be cut.

1 Set up Deck B ready for recording.

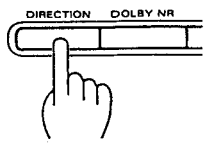
① **Insert the cassette tape.**

Tape to be recorded



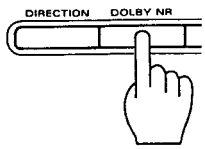
② **Set the tape transport direction.**

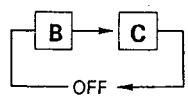
③ **Select the tape side(s) to be recorded.**



: Select two-side recording.

④ **Select the Dolby NR mode.**





2 Select the CD input.

3 Insert the disc in the CD player.

4 Select the tracks which must not be cut in recording.

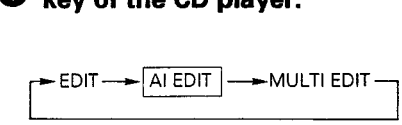
① **Press the P-MODE key of the CD player.**

● PGM lights up.

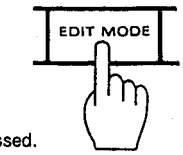
② **Input the track Nos. using the numeric keys.**

- Input several numbers in a desired order.
- For details, read the instruction manual provided with the CD player.

5 Select the AI EDIT mode with the EDIT MODE key of the CD player.



The mode changes every time the key is pressed.



- Proceed to the next step within 8 seconds after setting AI EDIT. If 8 seconds have elapsed, select the AI EDIT mode again.
- The CD playback mode is set automatically to PGM.

6 Input the two-way recording time of the tape.

Use the numeric keys of the CD player.

C-60 tape: Press +10 6 times, and 20/0 once.

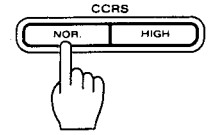
C-46 tape: Press +10 4 times, and 6 once.

- 46, 54, 60 or 90 can also be selected every time the TIME key is pressed. In this case, press the EDIT MODE key again to establish the input.
- Tracks are edited automatically to fit sides A and B, and the end of editing is indicated when the EDIT indicator changes from blinking to continuous lighting.

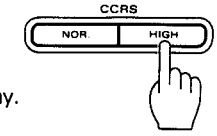
7 Select FADE with the MODE key of the cassette deck.

8 Press the CCRS key.

Normal-speed recording

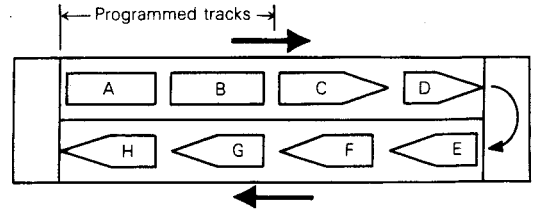


Double-speed recording



- HIGH or NOR. is displayed in the display.

Recording occurs as shown below.



- First, the programmed tracks are recorded without any cutting, the other tracks are recorded with the end of every track cut by fade-out.
- If the tape has enough recording time, all tracks are recorded until the end.
- The CD player and cassette deck enter the stop mode automatically after the completion of recording.

Notes:

1. If an extremely-short tape recording time is set, automatic editing may not occur, or the tracks that must not be cut may cut.
2. The SPACE key and REPEAT key functions are inoperative.
3. Edit operation does not occur if a track No. 44 or more has been programmed.

■ MULTI EDIT (Multiple disc edit) recording

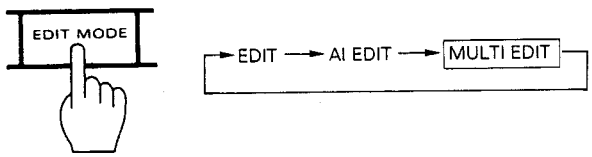
This function allows to edit desired tracks on multiple CDs, each of which containing no more than 20 tracks, and record them on a single tape while replacing discs.

1 Set up Deck B ready for recording.

2 Select the CD input.

3 Insert the disc in the CD player.

4 Select the MULTI EDIT mode with the EDIT MODE key of the CD player.



- Proceed to the next step within 8 seconds after setting MULTI EDIT. If 8 seconds have elapsed, select the MULTI EDIT mode again.
- The CD playback mode is set automatically to [PGM].

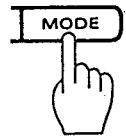
5 Input the two-way recording time of the tape.

Use the numeric keys of the CD player.
C-60 tape: Press [+10] 6 times, and [20/0] once.
C-46 tape: Press [+10] 4 times, and [6] once.

- 46, 54, 60 or 90 can also be selected every time the [TIME] key is pressed. In this case, press the [EDIT MODE] key again to establish the input.
- EDIT changes from blinking to continuous lighting, indicating the program input stand-by, and the recordable time of side A is displayed.

6 Select the desired mode of the cassette deck.

Press the MODE key.



Select the FADE or CROSS.

- Normal edit recording takes place when you select [FADE].
- When you select [CROSS], the intervals between music pieces are linked by overlapping of fade out and fade in so that edited recording with no breaks between pieces takes place. In the CROSS mode, the double-speed recording is not possible.

7 Select the tracks to be recorded.

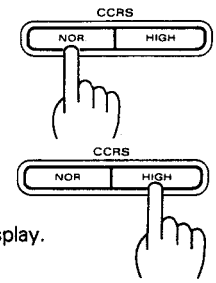
Using the numeric keys of the CD player, input the track Nos. in the order they are to be recorded.

- The time remaining on side A or side B is indicated on the display. Note the amount of time remaining before entering music piece numbers.
- When the time remaining on side A is 30 seconds or less, the next music piece is programmed on side B.
- A music piece for which FAdE is displayed during input of the music piece number on side A fades out. If another music piece number is entered, programming takes place on side B from that music piece.
- A music piece for which FAdE is displayed during input of the music piece number on side B fades out. If another music piece number is entered, "FULL" is displayed and no further programming can be accepted.

8 Press the CCRS key.

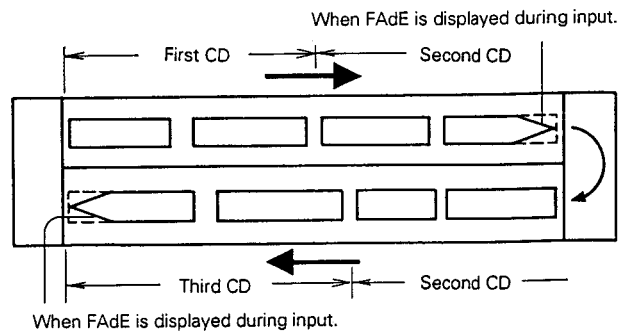
Normal-speed recording

Double-speed recording



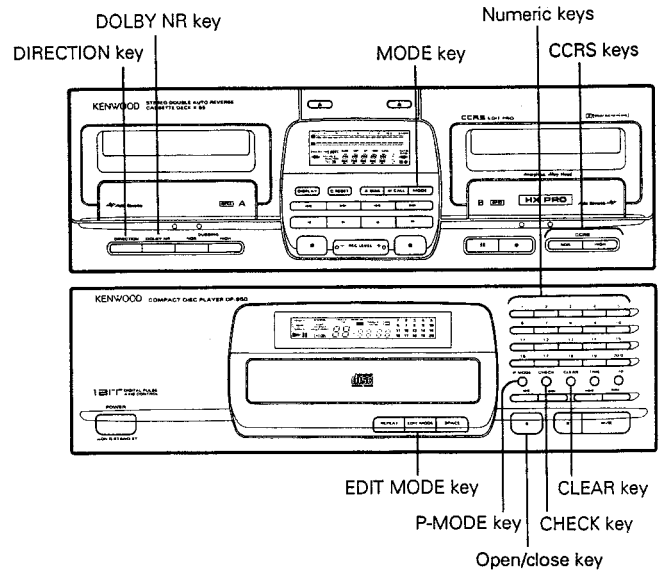
- HIGH or NOR. is displayed in the display.

Recording occurs as shown below (examle when three CDs are to be recorded).



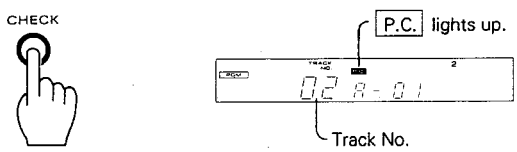
- Each time disc recording is completed, the CD player and cassette deck stop together and the CD player tray comes out automatically.
- To record a second or third disc, change the disc and close the disc tray, then repeat steps 7 and 8.

Notes:
1. When the time entered on CD player is longer than the recording tape, the music piece at the tape end fades out if [FADE] has been selected with the [MODE] key on the cassette deck. It becomes erased if [ERASE] has been selected. Confirm that the input time and the tape time are matched accurately.
2. Track No. 44 or more cannot be input.
3. The [SPACE] key and [REPEAT] key functions are inoperative.
4. If the disc tray automatically closes, press the Open/close key to open the tray, replace the disc, then repeat steps 7 and after.



■ To check the edited contents

Press the CHECK key on the CD player.



- Every time the key is pressed, the track Nos. are displayed in the edited order.
- Only the track Nos. on the disc being present in the CD player are displayed in case of MULTI EDIT.

■ To clear the edited contents

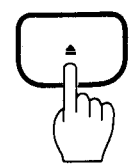
Clearing individual tracks from the last track (MULTI EDIT only)

Press the CLEAR key of the CD player.

- Every time the key is pressed, the last track in the edited sequence of tracks is cleared.
- Only the track on the disc being present in the CD player can be cleared.

Clearing all edited contents

Press either of the following keys of the CD player.

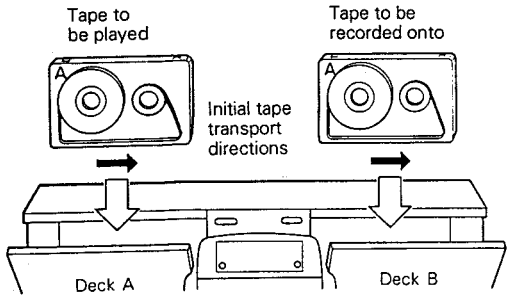


- Only the track on the disc being present in the CD player can be cleared in case of MULTI EDIT.

Tape dubbing

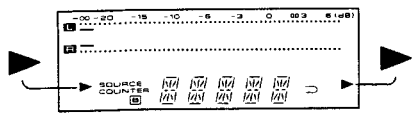
The dubbing refers to the copy of the recorded contents of a tape to another tape (tape in Deck A → tape in Deck B).
Normal-speed dubbing: Copy at normal tape speed.
High-speed dubbing: Copy at double the normal speed.

1 Insert tapes in the cassette decks.

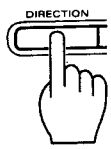


2 Set the same tape transport direction for both tapes.

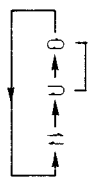
Read page 21.



3 Select one-way or two-way dubbing mode.



The mode changes every time the key is pressed.



For two-way dubbing

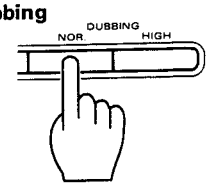
For one-way dubbing

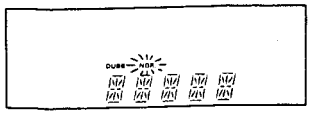
4 Press the A.BIAS key.

- The optimum bias is set in about 45 seconds, after which the cassette decks enter the stop mode.

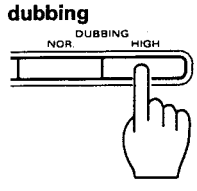
5 Start dubbing.

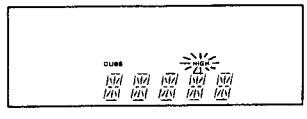
For normal-speed dubbing

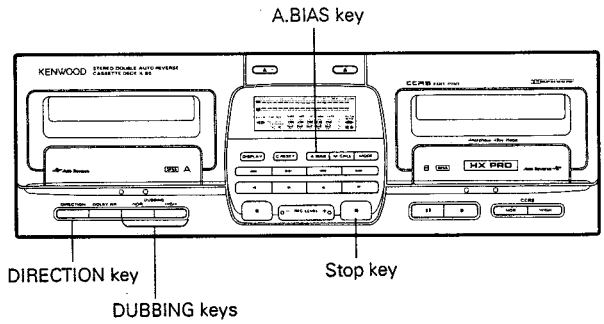




For high-speed dubbing

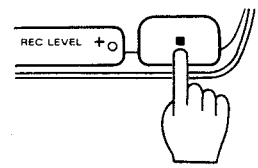






To stop dubbing

Press the B deck stop key.



- Both Decks A and B enter the stop mode.

To pause dubbing

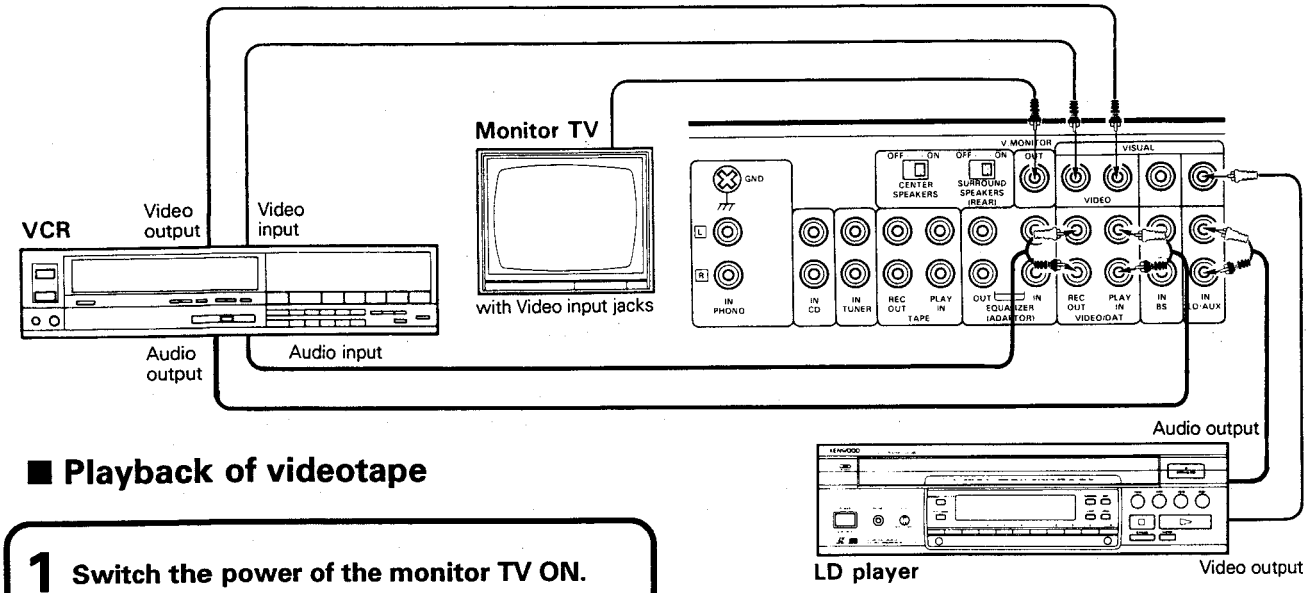
Normal-speed dubbing : Press the NOR. key.
High-speed dubbing : Press the HIGH key.

- Only deck B enters the record-pause mode after leaving a non-recorded space of about 4 seconds in case of normal-speed dubbing, or about 6 seconds in case of high-speed dubbing.
- To skip tunes you do not want to dub on another tape during dubbing, press the [►►] key of Deck A.
- To resume dubbing after pause, press the same DUBBING key as above ([NOR.] or [HIGH]) again.

Notes:
1. The recording level cannot be adjusted for dubbing.
2. The DOLBY NR key does not function during dubbing. The tape recorded by dubbing features the same NR system as the original tape in Deck A.
3. Noise from TV may interfere with dubbed sound if high-speed dubbing is executed near a TV set. To prevent this, install the system farther from the TV set.
4. If the original tape was recorded at a high level, the sound quality may be degraded if high-speed dubbing is used. In such a case, use normal-speed dubbing.

Operation with video components

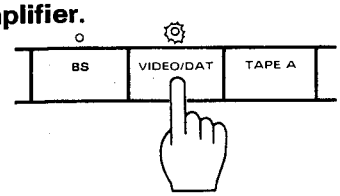
For the connections and operations, also read carefully the instruction manuals supplied with the video components to be connected.



■ Playback of videotape

1 **Switch the power of the monitor TV ON.**

2 **Press the VIDEO/DAT input selector key of the amplifier.**



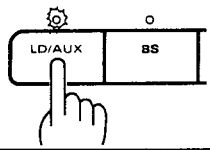
3 **Play the VCR.**

■ Recording of video source

1 **Connect the video source component to be recorded to the LD/AUX jacks of the amplifier.**

- A video player deck, video camera, LD player, DBS tuner, etc., can be connected.

2 **Press the LD/AUX input selector key of the amplifier.**

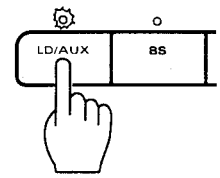


3 **Play the video source component.**

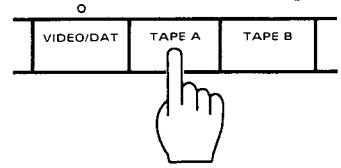
4 **Put the VCR in the record mode.**

■ Listening to CD or tape sound while watching video

1 **Play the desired video component.**

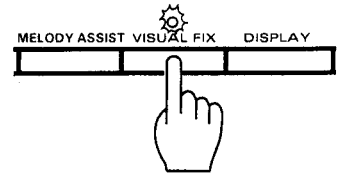


2 **Play select the desired audio input.**



- The video you are watching remains unaltered while only the sound of the audio system is switched.

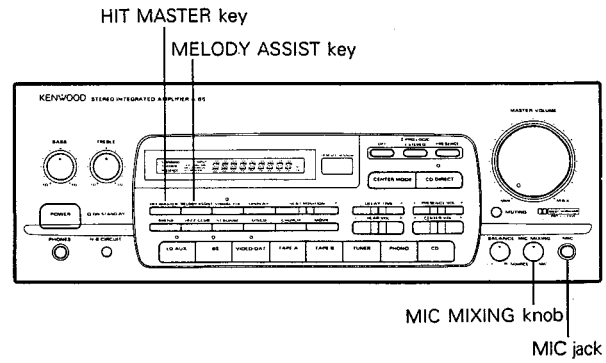
VISUAL FIX key



When this key is pressed after the input selector of the video system has been selected, the video input becomes fstationary. While watching an LD, even if the video input selector is selected, (the LD image remains in view). In addition, you can also listen to CD while watching the LD. Press this key once again to release the function.

Let's sing

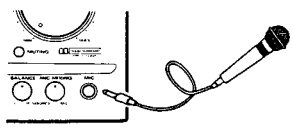
Even if a genuine music source is not available for vocal accompaniment, you can enjoy singing along with music using a regular music tape or CD. There is no spectrum analyzer display on the graphic equalizer.



■ Regular MIC MIXING

Match the mic sound with the music source so you can sing a duet with your favorite singer.

1 Connect the microphone.



2 Play the music piece.

3 Sing together with the music piece.

4 Adjust the mic sound volume.

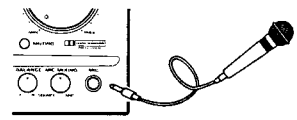
When using the mic only,

Stop the music and set the MIC MIXING knob to the MIC side.

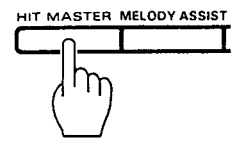
■ Karaoke with HIT MASTER

The vocal parts of the music piece are muted out so that you become the leading singer.

1 Connect the microphone.



2 Set the HIT MASTER to ON.

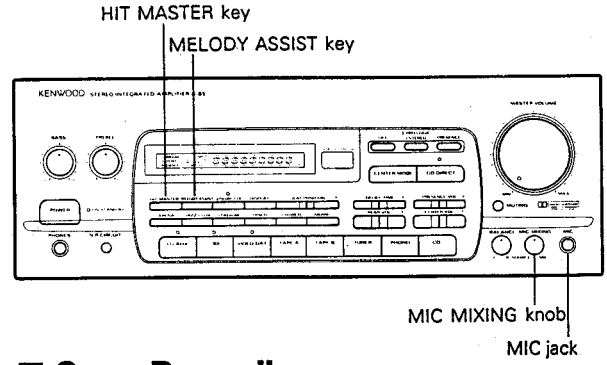


3 Play the music piece.

4 Sing together with the music piece.

5 Adjust the mic sound volume.

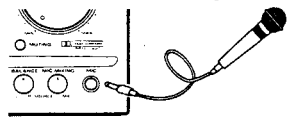
Note:
Depending on the music source, it might not be possible to erase the vocal parts.



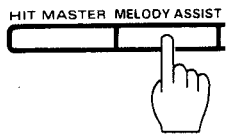
■ Karaoke with MELODY ASSIST

When you sing into the mic, your voice is heard. When you stop singing, the original singer's voice is heard.

1 Connect the microphone.



2 Set the MELODY ASSIST to ON.



3 Play the music piece.

4 Sing together with the music piece.

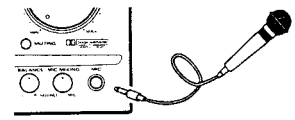
5 Adjust the mic sound volume.

Notes:
1. If the voice at the mic is low, it might not be possible to lower the original singer's voice.
2. When MELODY ASSIST is ON, even if the knob is set to SOURCE side, the original singer's voice may beocme low whenever a voice enters from the mic.

■ Song Recording

Record your own voice with the original orchestra in the background.

1 Connect the microphone.

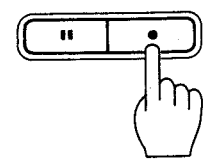


2 Execute steps for "Ordinary recording" up to step 4.

● See page 24.

3 Select HIT MASTER or MELODY ASSIST.

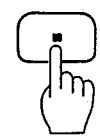
4 Start recording.



5 Play the music piece.

6 Sing together with the music piece.

7 Stop recording.



Concerning presence

The overpowering sence of presence one experiences at a movie theater, concert hall or baseball stadium, for example, can be created by having sound come from all directions, not just from the front. This unit is equipped with three types of surround decoders. Each deccoder correspond to a type of music source so that the sence of actually being present at a movie theater, concert hall, baseball stadium can be created.
Moreover, a special-purpose DSP (digital signal processor) is used for each presence mode so that a miraculous sense of sound space can be created without sacrificing sound quality. Adjust the unit as you wish to match the size of your room.

Concerning Presence

Dolby Pro Logic Surround

Video or LD material with the DOLBY SURROUND mark attached contains the same recordings of Dolby Surround data as a Dolby stereo movie. Now you can enjoy the sound effects of a movie theater in your own home. (See page 42.)

Set the ① CENTER MODE, ② DELAY TIME, ③ CENTER VOL. (not available for CENTER MODE PHANTOM), and ④ REAR VOL.

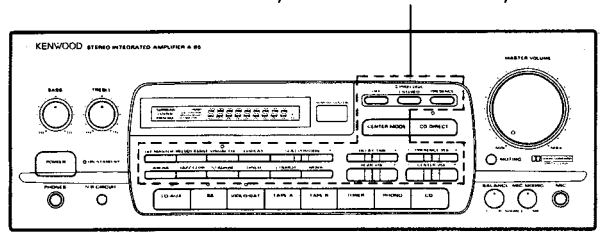
Dolby 3 Stereo

When the right and left speakers are separated, the orientation of the sound image at the center becomes defective. Dolby 3 stereo adds directional emphasis in order to improve the orientation of the sound image at the center. (See page 42.) Surround sound can now be enjoyed without rear speakers.
Set for the CENTER MODE.

Presence

The ways of enjoying audio have been expanded through high-level digital signal processing at stereo sources such as CD, tape or tuner. Through DSP (digital signal processing), this unit creates initial reflex sound and reverberation sound and reproduces the sound field of all types of sound sources.
- This unit contains six types of preset patterns. (See page 44.)
- If desired, you can make fine adjustments to modify the sound field according to your taste. (See page 45.)
  Set the ① PRESENCE MODE, ② DELAY TIME, ③ PRESENCE VOL., ④ REAR VOL. and ⑤ SEAT POSITION.

Keys related to sound field adjustment



Manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

DSP (Digital Signal Processor)

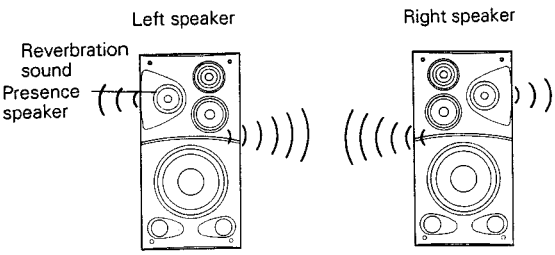
The DSP system converts the reverberation components which enhance the presence effects into digital signals, and provides various presence effects without spoiling the quality of music sources.

■ Preparation for DFS (Except for the U.K. and Europe)

1 Switch the power to off.

2 Connect the front speakers.

- Refer to the provided Connecting diagram.
- When the presence mode of the amplifier is selected, reverberation sound is reproduced from the presence speaker.
- When ▯▯ Pro Logic or 3 Stereo mode is selected, no sound is output.



■ Preparation to obtain surround presence effect (Optional)

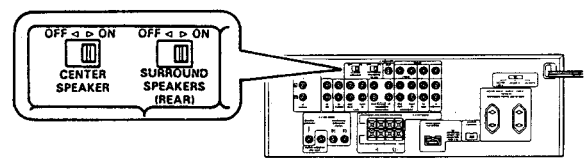
1 Switch the power to off.

2 Connect the speakers for surround.

- Refer to the provided Connecting diagram.

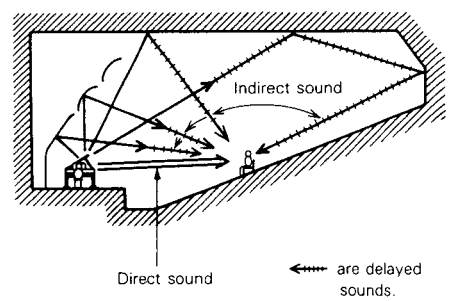
3 Set the speaker mode switch on the amplifier rear panel.

- When the center speaker is connected, set the center speaker selector switch to on. When the rear (surround) speakers are connected, set the rear (surround) speaker selector switch to on.
- Only in ▯▯Pro Logic mode, sound is directed to the center speaker.
- When the presence mode of the amplifier is selected, reverberation sound is reproduced from the presence speaker.



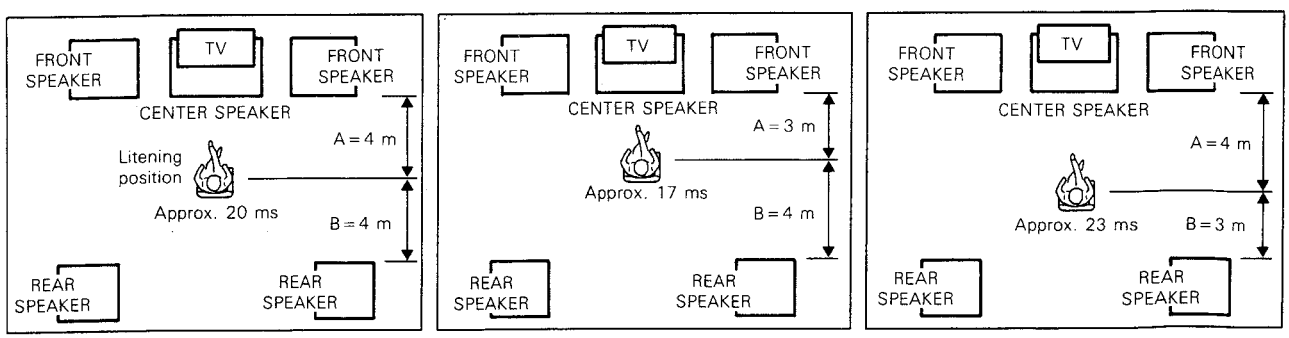
Concerning Delay Time

In the case of a concert hall as shown in the illustration, when sound from the piano played on the stage reaches the ears of listeners in the audience, it consists of Three sound elements : 1) sound arriving directly from the piano, 2) sound which has been reflected back once or twice by reflectors, ceiling, side and back wall, and 3) reverberation sound which is reflected back and forth an infinite number of times until it fades out.
In contrast to direct sound, indirect sound always arrives at the listener's ear after traveling a roundabout route. The lag in arrival between the direct and indirect sound is called the DELAY TIME. The level of indirect sound or reverberation sound is referred to as the PRESENCE VOLUME. The indirect sound which produces a delay time plays a vital role in producing good sound effect and a sense of presence in the concert hall.
The acoustic field varies depending on the speaker arrangement, so it is recommended that you try various delay time settings to obtain the best sound field possible.

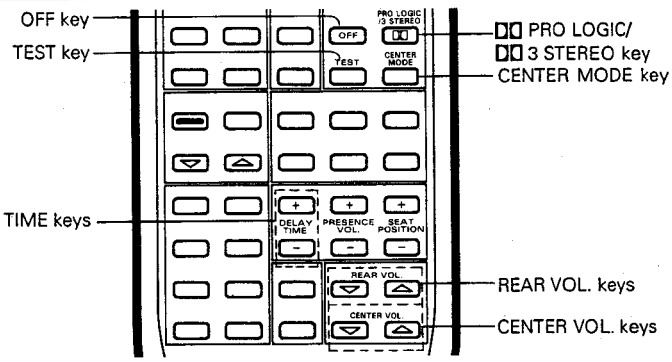


Delay Time Setting Procedure (In Dolby Pro Logic mode)

Set the delay time based on the following formula with the distance from the listening position to the front speaker and the distance from the listening position to the rear speaker.
Delay time = 20 ms + 3 ms x (A - B)



Dolby PRO LOGIC / 3 STEREO mode

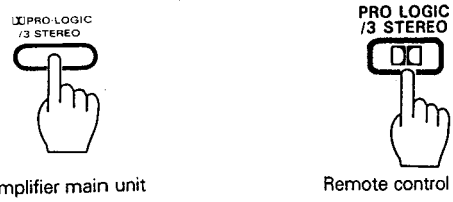


■ Adjustment Procedure

Adjustment can be made from remote control unit.

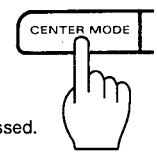
1 Set for DD Pro Logic or DD3 Stereo.

Press the DD PRO LOGIC/ DD 3 STEREO key.



Amplifier main unit　　Remote control unit

2 Select the CENTER MODE.



Changes as shown below each time the key is pressed.

When at DD Pro Logic

NORMAL → WIDE → PHANTOM

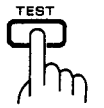
When at DD3 Stereo

NORMAL ⇄ WIDE

- If the center speaker is small in size, set for NORMAL; if it is medium size or larger, set for WIDE.
- When there is no center speaker, set for PHANTOM.

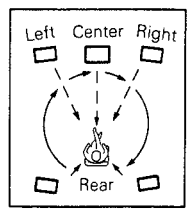
3 Engage the test tone. Remote control only

Press the TEST key.



A buzzing sound comes from the speaker. Changes as shown each time the key is pressed.

every two seconds → every one second → OFF

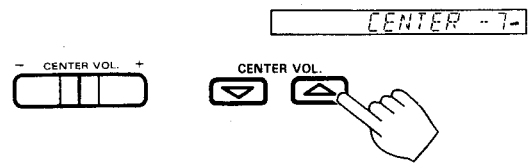


- Press at the listening position.
- When at Pro Logic, sound is produced in the following sequence: LEFT → CENTER → RIGHT → REAR.
- When at 3 Stereo, sound is produced in the sequence: LEFT → CENTER → RIGHT (REAR not available with 3 stereo mode.)
- When at PHANTOM, sound is produced in the sequence: LEFT → RIGHT → REAR each time the key is pressed.

4 Adjust so that the same sound volume comes from each speaker.

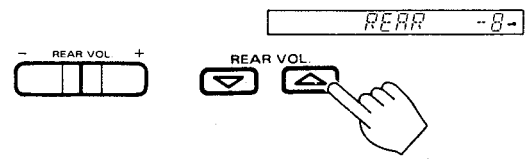
① Align with sound volume of center speaker.

- Adjust within a range of –78 to 0 dB. Adjustment to DD3 Stereo mode is not possible.



② Align with sound volume of rear speaker.

- Adjust within a range of –78 to 0 dB.

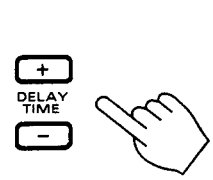


- Adjust the rear volume so that the sound volumes from the rear speakers are the same.
- In the case of 3 Stereo, since there is no rear speaker, adjust so that the sound volumes from the three front speakers are all the same.
- These adjustments are not possible when the center and rear speaker selector switches are set to eff.

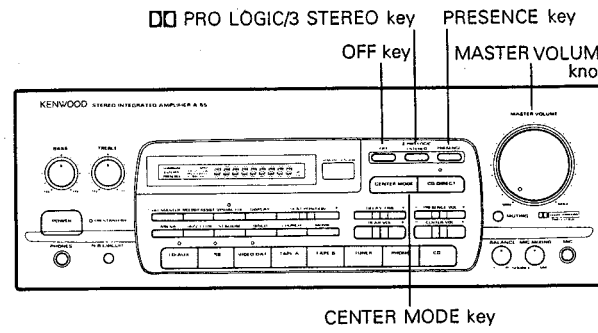
5 Set the test tone to OFF. Remote control only

Press the TEST key.

6 Set the delay time.



- Delay time is not set at 3 Stereo.
- Adjust within a range of 15 to 30ms based on formula given on page 41.
- Adjustment can be made in increments of 1 ms each time the DELAY TIME keys is pressed.
- When the mode is switched, the initial setting value is restored.



■ Playback procedure

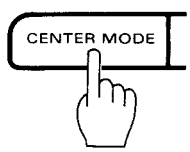
When video material with the DOLBY SURROUND mark is played back, the same Dolby Surround sound effect enjoyed at a movie theater can be enjoyed at home.

1 Set for Pro Logic or 3 Stereo.

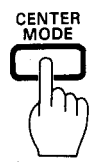
Amplifier main unit

Remote control unit

2 Select the CENTER MODE.



Amplifier main unit



Remote control unit

When at Pro Logic

NORMAL → WIDE → PHANTOM

When at 3 Stereo

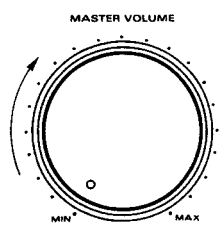
NORMAL ↔ WIDE

The mode changes each time the key is pressed, and the selected mode is indicated on the display.

3 Play Dolby Surround material.

4 Adjust the sound volume.

- Upon completion of adjustment, do not change the REAR VOL., CENTER VOL. and the DELAY TIME adjustment.



Amplifier main unit

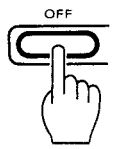
Remote control unit

The sound volume as a whole can be increased or decreased.

Release Dolby Surround

Press the OFF key.

- Always set to OFF when not using Dolby Surround.

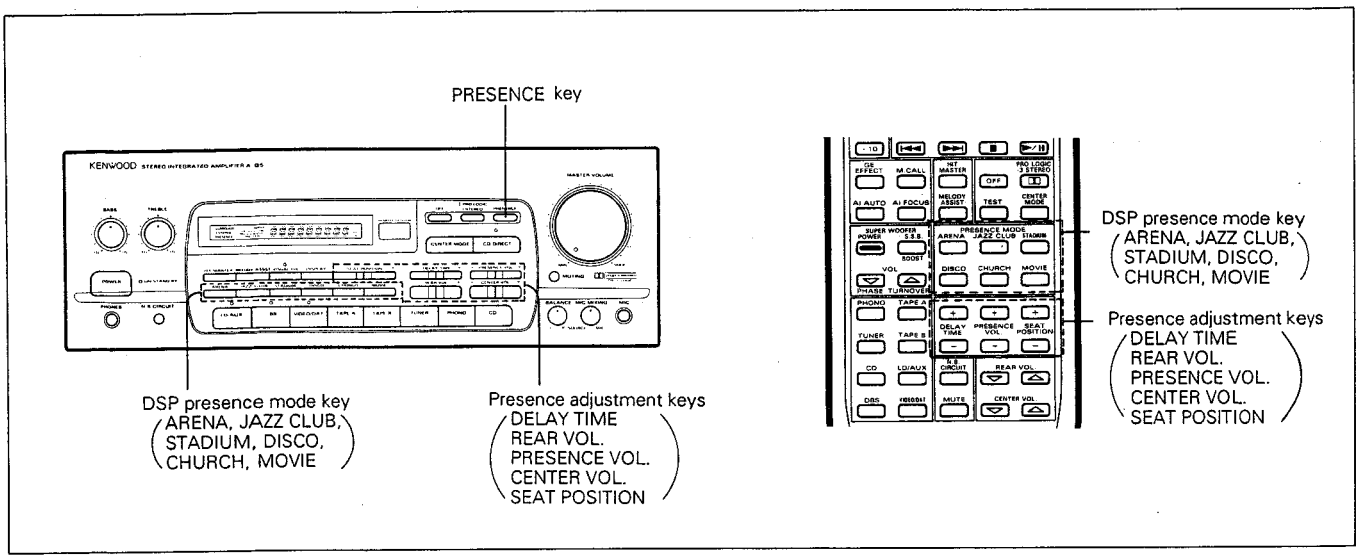


Amplifier main unit

Remote control unit

Presence mode

The atmosphere of various sound sources can be reproduced with a DSP (Digital Signal Processor). And by making adjustments, you can enjoy your original presence.



Presence mode is selected from ARENA, JAZZ CLUB, STADIUM, DISCO, CHURCH and MOVIE.

Presence can be amply enjoyed by simply referring to the table below and selecting PRESENCE MODE.

PRESENCE VOL. .....Adjust from -20 to 0 dB and set.

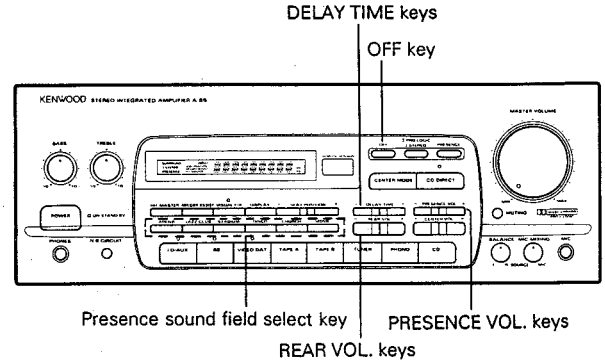
DELAY TIME .....Adjust from 5 to 100 ms and set.

REAR VOL. .....Adjust from - 78 to 0 dB and set.

SEAT POSITION .....Set the seat position at +12 (to front), -0 (center) or -12 (to rear).

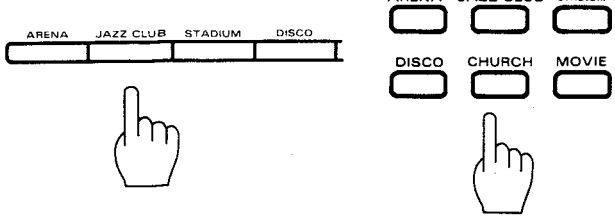
Initial settings and effects

Presence mode	Presence level	Delay Time level	Sound field atmosphere
ARENA	– 6dB	50ms	Hall with large amount of high-frequency reflection and reverberation sound for a long time.
JAZZ CLUB	– 2dB	40ms	Live jazz house where cymbals reverberate.
STADIUM	– 4dB	65ms	Stadium with the internal stadium sound reflection characteristic of PA speakers.
DISCO	– 2dB	60ms	Disco where pleasant reverberation sounds and graphic equalizer are used jointly and where medium and high sounds are predominant.
CHURCH	– 6dB	45ms	A solemn church with an abundance of reverberation sound.
MOVIE	– 8dB	55ms	A movie theater with high quality sound.



■ How to create sound field

1 Select the PRESENCE mode.



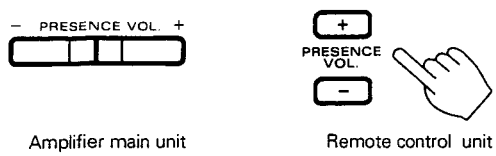
Amplifier main unit　　Remote control unit

2 Play the sound.

The acoustic field effect of the presence mode is amply realized after performing the above steps, but you can make the following adjustments as you wish.

- Even if presence is adjusted, it cannot be called out if you switch over to the Dolby Surround mode.

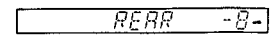
3 Adjust the presence volume.



Amplifier main unit　　Remote control unit

- Can be adjusted in increments of 2 dB in the range of –20 to 0 dB.

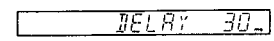
4 Adjust the rear speaker sound volume.



Amplifier main unit　　Remote control unit

- Adjust within a range of –78 to 0 dB.
- Adjustment cannot be made when the rear speaker mode switch is at OFF.

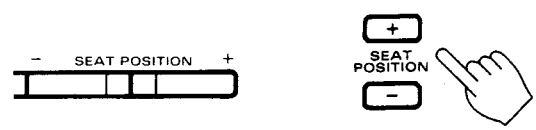
5 Set the delay time.



Amplifier main unit　　Remote control unit

- The delay time can be adjusted in increments of 5 ms in the range of 5 ms to 100 ms.

6 Set the seat position.



Amplifier main unit　　Remote control unit

- To have the seat move toward the front of the auditorium, press the + key, and to have it move backwards, press the - key.

Release the PRESENCE function

Press the OFF key.

Amplifier main unit　　Remote control unit

- Always set to OFF when not using the presence mode.

Note:
Since there is no output from the center speaker, the CENTER VOL. key does not operate.

Timer operations

Be sure to adjust the present time before proceeding to the following.

The timer of the system can be used for the following functions.

Program timer .....Receives broadcast, records broadcast or plays tape or CD at the specified ON time, and switches power OFF at the specified OFF time.
Up to six timer programs can be set. The AI TIMER functions can be added to the program timer function.

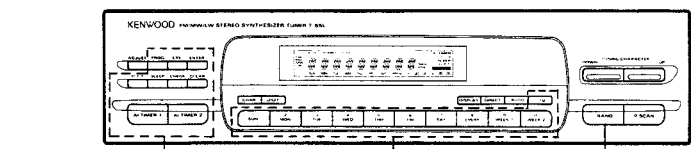
AI TIMER 1 .....When the power is switched ON at the timer ON time, the volume will increase in three steps, providing a wake-up effect like an alarm clock.

AI TIMER 2 .....When the power is switched ON at the timer ON time, two tracks of a CD is played first, then the input is switched automatically to the tuner.

Sleep timer .....Switches power OFF after a set time period has elapsed. If set before you go to bed, power can be switched OFF automatically even after you fell in sleep.

One-touch timer .....Switches power ON after a specified time period, set in the unit of 30 minutes up to 12 hours, from the moment it is activated. The AI TIMER functions can be added to the one-touch timer function.

Calendar check .....When the year, month and day are input in this order, the day of the week of that date is displayed by means of an indicator.

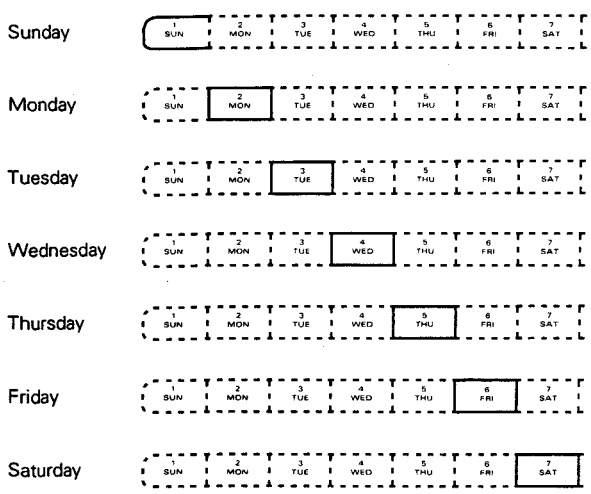


- For the timer setting procedures, read description on the next page and after.
- The contents of timer programs can be modified as required.
- Even when a timer program has been input, the timer will not be activated unless its execution has been activated.
- Turn the AI TIMER functions OFF when they are not required; otherwise, they will be added to all of the programs executed on that day.
- Once set, the contents of a program cannot be cleared at once. The previous contents can only be cleared when they are replaced by modification.
- The programs must be set so that their time ranges do not overlap.

Types of days of the weeks which can be selected by numeric keys

1. To execute a program only once on the specified day of the week after its execution has been activated.

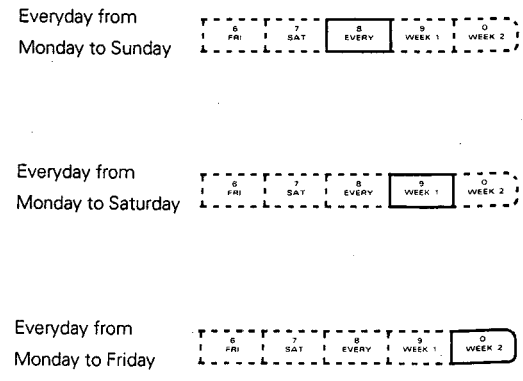
Numeric keys



- It is required to activate the timer in the same time period of the next week, activate the execution again.

2. To execute a program repeatedly on every week after its execution has been activated.

Numeric keys



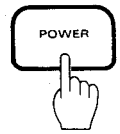
- If timer operation is not required, cancel the program execution.

Be sure to adjust the present time before proceeding to the following.

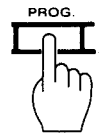
■ Timer reception of radio broadcast

1 Switch the power ON.

Press the POWER key of the amplifier.



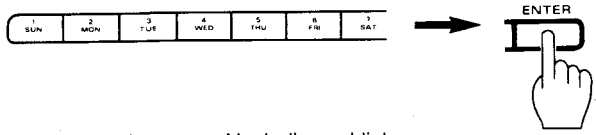
2 Select the program setting mode.



● The program No. indicators (1 to 6) blink.

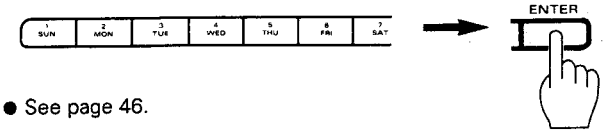
3 Select the program No. to be used.

Select from 1 to 6. Press within 10 seconds.



● The selected program No. indicator blinks.

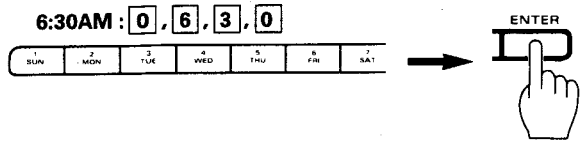
4 Specify the day(s) of the week with the numeric keys.



● See page 46.

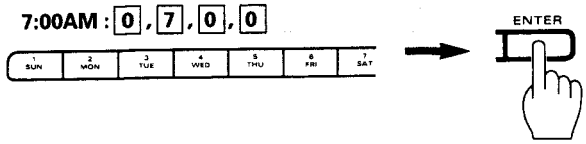
5 Input the ON time with the numeric keys.

6:30AM : 0, 6, 3, 0

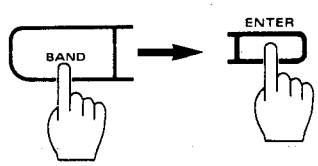


6 Input the OFF time with the numeric keys.

7:00AM : 0, 7, 0, 0

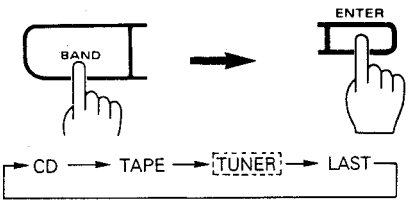


7 Select the PLAY mode.



The timer modes are switched between PLAY and REC every time the BAND key is pressed.

8 Select the TUNER source.



The sources are switched every time the BAND key is pressed.

● "LAST" is selected when, for instance, DBS tuner or LD player is being recorded.

9 Select the preset key under which the station to be received has been preset.

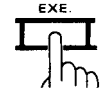
① **Press the numeric key.**

② **Press the ENTER key.**

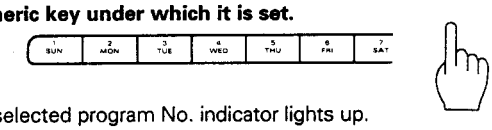
● The station must be preset previously.

10 Activate the execution of the program.

① **Press the EXE. key.**



② **Select the program No. to be executed by pressing the numeric key under which it is set.**

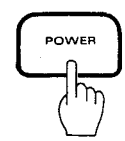


● The selected program No. indicator lights up.

11 Adjust the volume and tone.

12 Switch the power OFF.

Press the POWER key of the amplifier.



To continue the reception of radio station which as been started to be received by timer ON.

① **Press the CLEAR key before the OFF time comes.**
② **Press the numeric key for the program No. being executed.**

● When the program No. indicator goes off, it means that the program will be received continuously.

Notes:
1. If you commit a mistake in the timer programming, press the CLEAR key and re-start from the beginning.
2. If it is required to modify a program which has already been set, set a new program from the beginning.
3. When a program has previously been set in the program No. selected in step 3, the newly-set program replaces the previous program.
4. Do not operate the CLEAR key or POWER key while the time program execution has been activated; otherwise malfunction will occur.

Be sure to adjust the present time before proceeding to the following.

■ Timer playback of CD

1 Switch the power ON.

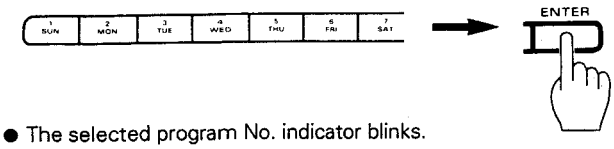
Press the POWER key of the amplifier.

2 Select the program setting mode.

● The program No. indicators (1 to 6) blink.

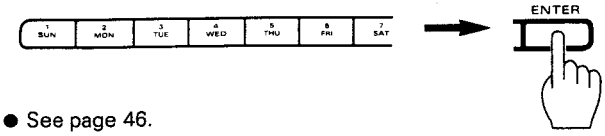
3 Select the program No. to be used.

Select from 1 to 6. Press within 10 seconds.



● The selected program No. indicator blinks.

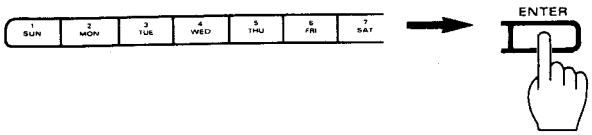
4 Specify the day(s) of the week with the numeric keys.



● See page 46.

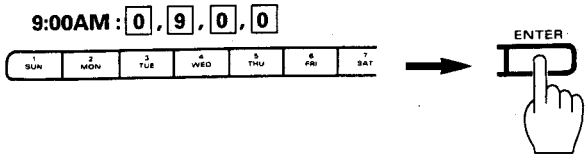
5 Input the ON time with the numeric keys.

8:00AM : 0, 8, 0, 0

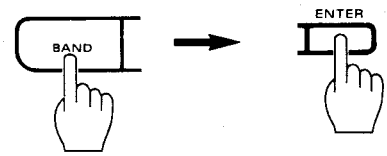


6 Input the OFF time with the numeric keys.

9:00AM : 0, 9, 0, 0

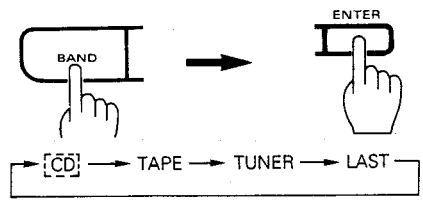


7 Select the PLAY mode.



The timer modes are switched between PLAY and REC every time the BAND key is pressed.

8 Select the CD source.



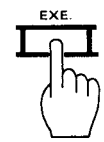
The sources are switched every time the BAND key is pressed.

9 Place a disc in the CD player.

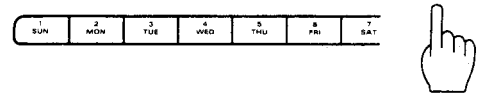
● It is not possible to preset a CD playback programs.

10 Activate the execution of the program.

① **Press the EXE. key.**



② **Select the program No. to be executed by pressing the numeric key under which it is set.**

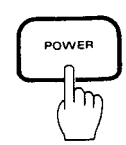


● The selected program No. indicator lights up.

11 Adjust the volume and tone.

12 Switch the power OFF.

Press the POWER key of the amplifier.



Notes:

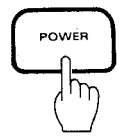
1. If you commit a mistake in the timer programming, press the CLEAR key and re-start from the beginning.
2. If it is required to modify a program which has already been set, set a new program from the beginning.
3. When a program has previously been set in the program No. selected in step 3, the newly-set program replaces the previous program.
4. Do not operate the CLEAR key or POWER key while the time program execution has been activated; otherwise malfunction will occur.

Be sure to adjust the present time before proceeding to the following.

■ Timer playback of tape

1 Switch the power ON.

Press the POWER key of the amplifier.

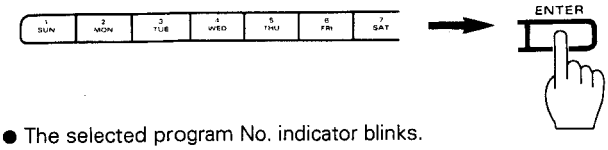


2 Select the program setting mode.

● The program No. indicators (1 to 6) blink.

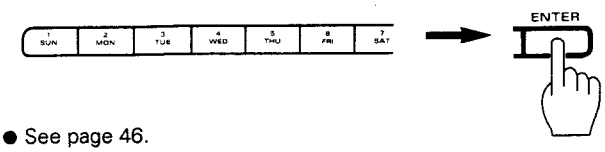
3 Select the program No. to be used.

Select from 1 to 6. Press within 10 seconds.



● The selected program No. indicator blinks.

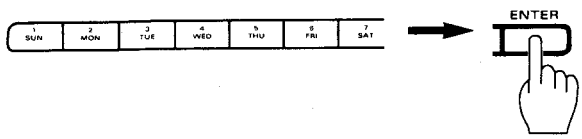
4 Specify the day(s) of the week with the numeric keys.



● See page 46.

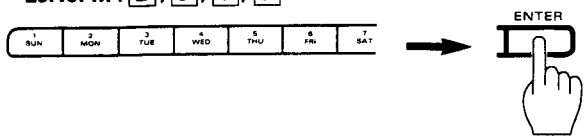
5 Input the ON time with the numeric keys.

22:45PM : [2], [2], [4], [5]

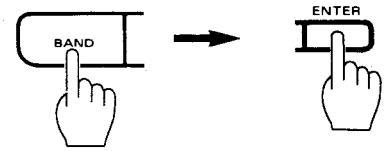


6 Input the OFF time with the numeric keys.

23:15PM : [2], [3], [1], [5]

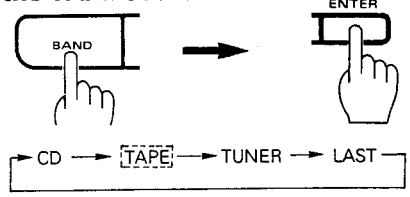


7 Select the PLAY mode.



The timer modes are switched between PLAY and REC every time the BAND key is pressed.

8 Select the TAPE source.



The sources are switched every time the BAND key is pressed.

9 Insert a tape and determine the playback condition.

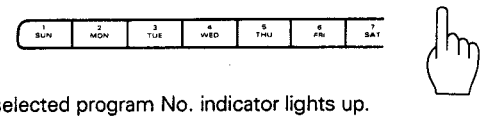
Select the side(s) to be played and the Dolby NR mode.

● Timer playback is possible with either Deck A or Deck B. However, if tapes are placed in decks, playback will begin from Deck A.

10 Activate the execution of the program.

① Press the EXE. key.

② Select the program No. to be executed by pressing the numeric key under which it is set.

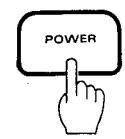


● The selected program No. indicator lights up.

11 Adjust the volume and tone.

12 Switch the power OFF.

Press the POWER key of the amplifier.



Notes:

1. If you commit a mistake in the timer programming, press the [CLEAR] key and re-start from the beginning.
2. If it is required to modify a program which has already been set, set a new program from the beginning.
3. When a program has previously been set in the program No. selected in step 3, the newly-set program replaces the previous program.
4. Do not operate the [CLEAR] key or [POWER] key while the time program execution has been activated; otherwise malfunction will occur.

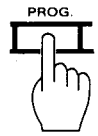
Be sure to adjust the present time before proceeding to the following.

■ Timer recording of radio broadcast

1 Switch the power ON.

Press the POWER key of the amplifier.

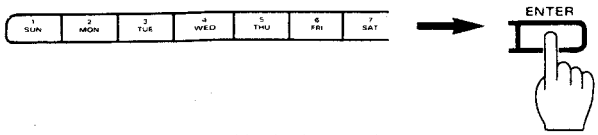
2 Select the program setting mode.



● The program No. indicators (1 to 6) blink.

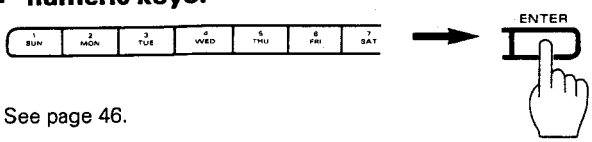
3 Select the program No. to be used.

Select from 1 to 6. Press within 10 seconds.



● The selected program No. indicator blinks.

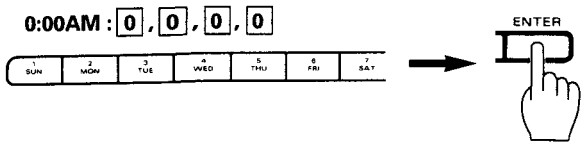
4 Specify the day(s) of the week with the numeric keys.



● See page 46.

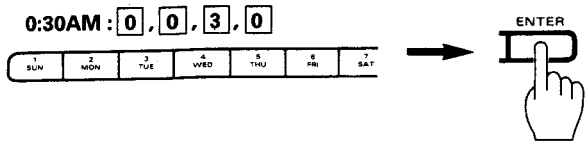
5 Input the ON time with the numeric keys.

0:00AM : [0], [0], [0], [0]

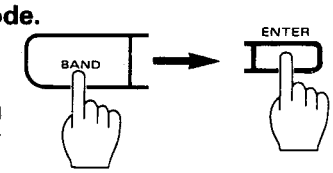


6 Input the OFF time with the numeric keys.

0:30AM : [0], [0], [3], [0]



7 Select the REC mode.



The timer modes are switched between PLAY and REC every time the BAND key is pressed.

8 Select the key under which the station to be received has been preset.

① **Press the numeric key.**

② **Press the ENTER key.**

● The station must be preset previously.

9 Set up the cassette deck ready for recording.

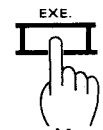
① **Insert a tape in Deck B.**
② **Set the tape transport direction.**
③ **Select the side(s) to be recorded onto.**
④ **Select the Dolby NR mode.**

● The auto-bias adjustment cannot be used.

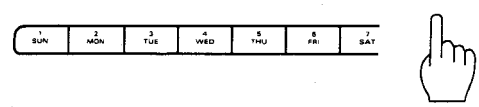
10 Adjust the recording level.

11 Activate the execution of the program.

① **Press the EXE. key.**



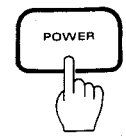
② **Select the program No. to be executed by pressing the numeric key under which it is set.**



● The selected program No. indicator lights up.

12 Switch the power OFF.

Press the POWER key of the amplifier.



● When the power is turned ON by the timer, the volume level is automatically set to the lowest level.

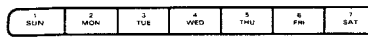
Notes:
1. If you commit a mistake in the timer programming, press the [CLEAR] key and re-start from the beginning.
2. If it is required to modify a program which has already been set, set a new program from the beginning.
3. When a program has previously been set in the program No. selected in step 3, the newly-set program replaces the previous program.
4. When the power supply is turned on with the timer, the sound volume is set at the lowest level.
5. Do not operate the [CLEAR] key or [POWER] key while the time program execution has been activated; otherwise malfunction will occur.

Be sure to adjust the present time before proceeding to the following.

■ To check timer program contents

1 Press the PROG. key.

2 Press the numeric key corresponding to the program to be checked.



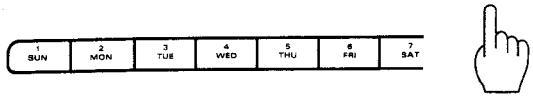
- If no program is selected while the program No. indicators are blinking, the previous display condition resumes.
- When a program is selected, its contents will be displayed for about 3 seconds, and the previous display resumes after it.

■ To cancel timer program execution

1 Press the CLEAR key.

2 Press the numeric key corresponding to the program the execution of which is to be cleared.

Select the number with a numeric key.



- The program contents are not cleared even when its execution is canceled.

Re-activation of timer execution after canceling it

Since the program itself is retained in memory, check its contents and perform the operation from the step "Activate the execution of the program" as follows.

① **Press EXE. key.**
② **Select the program No. to be executed by pressing the numeric key under which it is set.**
③ **Adjust the volume and tone in case of timer reception of broadcast or timer playback of CD or tape.**
④ **Switch the power OFF.**

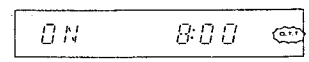
■ Operation of one-touch timer

The one-touch timer allows to switch power ON after a specified time period, set in the unit of 30 minutes, from the moment it is activated.

1 Set the timer ON time.

Press the O.T.T. key.

O.T.T. lights up.

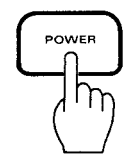


The ON time of timer is displayed. The displayed time is incremented by 30 minutes every time the key is pressed.

- When the key is pressed once, a time that can be divided by 30 minutes and within 30 minutes from the present time is displayed as the ON time. (Example: When pressed at 7:40, "8:00" will be displayed.)
- The ON time is incremented in 30-minute steps, for example from 0:00 to 0:30, 1:00, 1:30, and so on.
- The ON time can be set up to 12 hours later.
- The one-touch timer can be set even when the power is OFF.

2 Switch the power OFF.

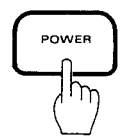
Press the POWER key of the amplifier.



- The ON time can be checked by pressing the O.T.T. key once.
- When the power is switched ON, the sleep timer will automatically be set to 60 minutes.
- When the power is switched ON, the last station received by the tuner will be received.

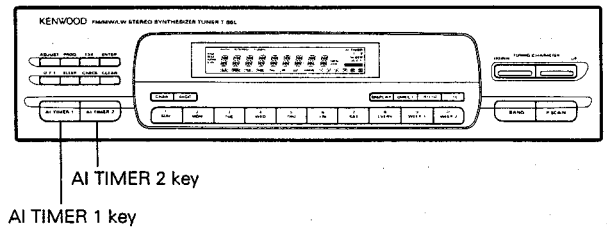
To cancel one-touch timer activated

Switch the power ON or **Press the O.T.T. key until the O.T.T. indicator goes off.**



Notes:
1. If time adjustment is performed after the ON time has been set, the ON time setting is canceled. In this case, execute setting once again.
2. The one-touch timer is released when the ADJUST key is pressed.

After setting the timer, one of the following operations can be added by pressing the AI TIMER keys. The AI TIMER 1 and AI TIMER 2 do not function in the timer recording mode.



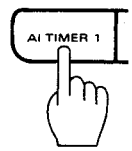
■ Operation of AI TIMER 1

With this function, when the power is switched ON by the program timer, the listening volume of the component increases in three steps.

1 Set the timer playback of program timer.

Switch the power of the amplifier OFF.

2 Press the AI TIMER 1 key.



- The AI TIMER 1 indicator lights up.

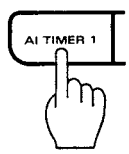
Select the maximum volume.

VOL 1 (Small) → VOL 2 (Intermediate) → VOL3 (Maximum) → OFF

- The display of the maximum volume changes every time the key is pressed. When the key is released, the display goes off and the volume level at that moment is stored in the memory.

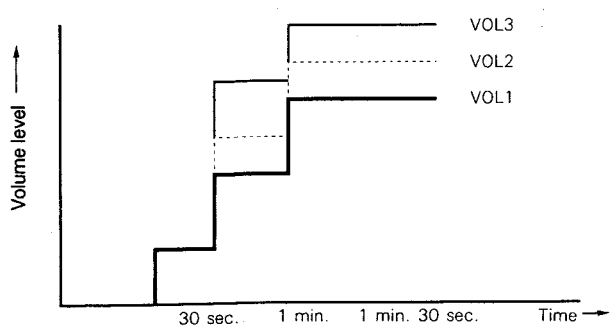
To cancel AI TIMER 1

Press the AI TIMER 1 key to select "OFF".



- The AI TIMER 1 indicator goes off.

Reference for volume selection



- The MASTER VOLUME knob rotates as the volume changes.
- The graphic equalizer curve also changes.

■ Operation of AI TIMER 2

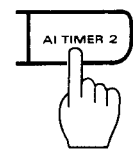
With this function, when the power is switched ON by the program timer, two tracks on the CD is played first, then the broadcast from the tuner is received automatically. This function is given the highest priority over other program timer functions.

1 Place a disc in the CD player.

2 Perform operations of "Timer reception of radio broadcast".

- Refer to page 47.

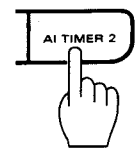
3 Press the AI TIMER 2 key.



- The AI TIMER 2 indicator lights up.
- Also press the AI TIMER 1 key if you want to increase the volume in three steps.

To cancel AI TIMER 2

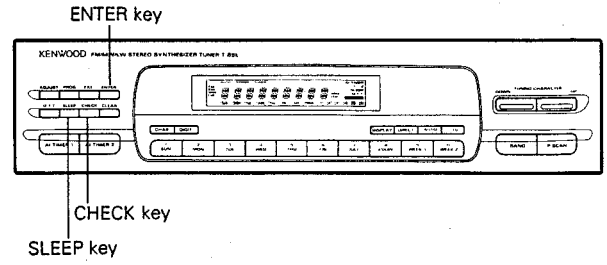
Press the key again.



- The AI TIMER 2 indicator goes off.

Notes:

1. When the operation keys of the graphic equalizer or the MASTER VOLUME key on the remote control unit is pressed while the AI TIMER 1 function is carried out, the volume is fixed at the level being set.
2. If the TUNER or TAPE input selector key is selected during the CD playback of AI TIMER 2, the CD playback stops there and the AI TIMER 2 function is canceled.
3. If the operation keys of the CD player is pressed during the CD playback of AI TIMER 2, the CD playback stops there and the AI TIMER 2 function is canceled.
4. If the CD has not been inserted, reception of radio broadcast starts at the moment AI TIMER 2 is activated.
5. Even when the program timer operation has completed, the AI TIMER 1 and 2 indicators do not go off. Be sure to turn off the indicators when the AI TIMER 1 and/or 2 is not required any more.

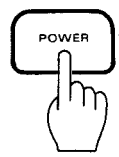


■ Operation of Sleep timer

The sleep timer allows to turn the system power off after the specified period has elapsed. This function may be most convenient when you like to fall in sleep while listening to music.
The period can be set up to 90 minutes in 10-minute steps. The sleep timer is applied in priority over other timer programs.

1 Switch the power ON.

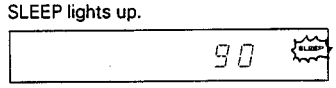
Press the POWER key of the amplifier.



2 Specify the period after which the power is to be switched OFF.

Press the SLEEP key.

SLEEP lights up.



90 → 80 → 70 → ····· → 20 → 10 → canceled

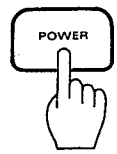
● Each press decreases the period by 10 minutes.

To cancel Sleep Timer

Press the SLEEP key until the sleep timer is canceled

or

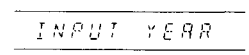
Switch the power OFF.



■ Operation of calendar check

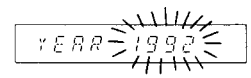
The calendar check allows to display the day of the week of the specified date input by the user in the order of year, month and day. This function covers the range from January 1, 1900 to December 31, 2099.

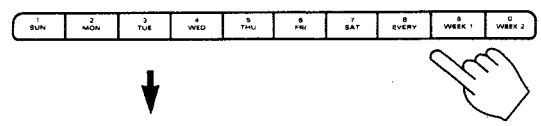
1 Press the CHECK key.

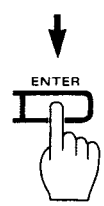


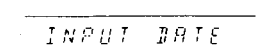
2 Input the year with the numeric keys.

Year 1992 : [1], [9], [9], [2]



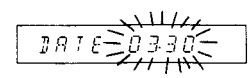


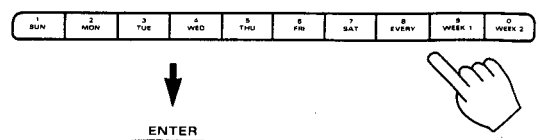


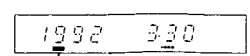


3 Input the month then the day with the numeric keys.

March 30 : [0], [3], [3], [0]







Day of the week

● The day-of-the-week indicator of the date input above lights up. The previous display resumes in a few seconds.

In case of difficulty

What appears to be a malfunction may not always be serious. If your unit should not perform as expected, consult the table below to see if the problem can be corrected before seeking help from your dealer or service representative.

Remote control unit

Symptom	Cause	Remedy
Remote control operation is not possible.	● Batteries are exhausted. ● The audio cords and the system control cords are not connected properly. ● The remote control unit is too far away from the main system, controlling angle is too large, or there is an obstacle in between. ● The source component to be operated does not contain the analog disk, tape(s) or CD. ● An attempt is made to play a tape which is being recorded in the cassette deck.	● Replace with new batteries. ● Connect properly referring to provided Connecting diagram. ● Operate the remote control unit within the controllable range. ● Place an analog disk, tape(s) or CD in the source component to be played. ● Wait until the recording is completed.

Amplifier, speakers

Symptom	Cause	Remedy
Sound is not output.	● The speaker cords are disconnected. ● The VOLUME is set to the minimum position. ● The MUTING key of the amplifier is set to ON and the point indicator is blinking.	● Connect properly referring to provided Connecting diagram. ● Adjust the volume to a proper level. ● Press the MUTING key to OFF.
No sound comes out, and "PROTECT" is shown on the display.	● Speaker cords are short-circuited.	● Unplug the power cord, eliminate the short-circuiting, then turn on the power again.
Sound is not output from one of the speakers.	● The speaker cord is disconnected. ● The BALANCE control is set to an extreme position.	● Connect properly referring to provided Connecting diagram. ● Adjust the Left/Right balance.
Sound does not come from rear speaker, or the sound is very low.	● The rear speaker cord is disconnected. ● The Dolby 3 Stereo mode has been selected. ● REAR VOL. has been reduced to the lowest level possible. ● MASTER VOLUME has been reduced to the lowest level possible. ● The rear speaker switch is at OFF.	● Connect properly referring to provided Connecting diagram. ● Select Dolby Pro Logic or the Presence mode. ● Adjust REAR VOL. ● Adjust MASTER VOLUME. ● Set the rear speaker switch to ON.
Sound does not come from center speaker, or the sound is very low.	● The center speaker cord is disconnected. ● Dolby Pro Logic, 3 Stereo or Presence mode has not been selected. ● PRESENCE VOL. has been reduced to the lowest level possible. ● CENTER VOL. has been reduced to the lowest level possible. ● MASTER VOLUME has been reduced to the lowest level possible. ● The center speaker switch is at OFF.	● Connect properly referring to provided Connecting diagram. ● Select Dolby Pro Logic, 3 Stereo or the Presence mode. ● Adjust PRESENCE VOL. ● Adjust CENTER VOL. ● Adjust MASTER VOLUME. ● Set the center speaker switch to ON.
Sound becomes distorted.	● Tone control is set completely to the right.	● Adjust the tone control to the center.
A hum noise is generated when the PHONO input selector key is pressed.	● The audio cord from the turntable is not inserted securely into the PHONO jacks. ● The turntable is not grounded.	● Insert the audio cord plugs securely into the PHONO jacks. ● Connect the grounding wire to the GND terminal on the rear panel.

Tuner

Symptom	Cause	Remedy
The clock display is blinking without changing from a certain time.	● There was a power failure. ● The power cord was unplugged.	● Set the current time again. ● Set the current time again.
The timer does not work.	● The current time is not set, or there was a power failure. ● The timer ON time and OFF time have not been set. ● The timer execution has not been specified.	● Set the current time referring to "Time adjustment". ● Set the timer ON time and OFF time. ● Specify execution by pressing the EXE. key.
Radio stations cannot be received.	● No antenna is connected. ● The broadcast band is not set properly. ● The frequency of the desired station is not tuned.	● Connect an antenna. ● Set the broadcast band properly. ● Tune the frequency of the desired station.
A station which was preset cannot be received by pressing the corresponding numeric key.	● The preset station belongs to a frequency that cannot be received. ● The preset memory was cleared because the power cord had been unplugged for a long period of time.	● Preset a station with a receivable frequency. ● Preset the station again.
Interference.	● Noise due to ignition noise of an automobile. ● Noise due to an influence from an electric appliance. ● Noise due to a nearby TV set.	● Install the outdoor antenna apart from the road. ● Turn off the power of the appliance. ● Install the system more apart from the TV set.

Cassette decks

Symptom	Cause	Remedy
Sounds is not produced when the Play key is pressed.	● The connection cords are connected improperly. ● The head is dirty. ● Tape is irregularly wound and hard to take up. ● A non-recorded tape is being played.	● Connect properly referring to provided Connecting diagram. ● Clean the head referring to "Cleaning the head section". ● Replace the tape. ● Play a recorded tape.
The deck does not work when an operation key is pressed.	● The cassette holder is not closed completely. ● The operation key was pressed immediately after closing the cassette holder. ● The operation key was pressed within less than 3 seconds after the power was turned on. ● Tape is not inserted. ● Tape is irregularly wound and hard to take up. ● Tape has been fully wound to reel.	● Close the cassette holder completely. ● Press the desired operation key in a few seconds after closing the cassette holder. ● Press the desired operation key in more than 3 seconds after turning the power on. ● Insert a tape. ● Replace the tape. ● Change the tape transport direction or insert the tape inversely.
DPSS malfunctions.	● The tape is not suitable for DPSS operation, for example the spaces between tunes are too short.	● Read "DPSS operation".
CCRS does not work.	● A recordable tape is not inserted in Deck B. ● A disc is not placed in the CD player. ● The disc is dirty.	● Insert a recordable tape in Deck B and press the CCRS key. ● Place a disc in the CD player and press the CCRS key. ● Clean the disc, place it in the CD player, and press the CCRS key.
The dubbing on Deck A and Deck B ends at different timing.	● This is due to the difference in tape length or to the characteristics of the cassette deck mechanisms.	● A small time difference is not regarded as a failure.
The cassette holder does not open when the EJECT key is pressed.	● The key is pressed during recording or playback.	● Press in the Stop mode.
Sound is hoarse, or high frequencies are not audible.	● The head is dirty. ● The tape is stretched or wrinkled.	● Clean the head referring to "Cleaning the head section". ● Replace the tape.
Sound is distorted.	● The recording level was too high. ● A tape recorded with distorted sound is being played.	● Adjust the recording level referring to "Recording operation on cassette deck". ● Replace the tape.
Recording is not initiated when the REC key is pressed.	● The protection tab on the cassette has been broken. ● The cassette holder is not closed completely. ● The recording level is set to the minimum position. ● The TAPE A or B input selector is selected on the amplifier. ● Tape has been fully wound to a reel.	● Use a cassette with unbroken tab or close the hole. ● Close the cassette holder completely. ● Adjust the recording level referring to "Recording operation on cassette deck". ● Press the input selector key of the source to be recorded. ● Change the tape transport direction of Deck B or insert the tape inversely.
Noise level is high.	● The head is magnetized. ● External noise is induced. ● The recording level was too low. ● A tape recorded with Dolby NR ON is being played with Dolby NR OFF.	● Demagnetize the head referring to "Cleaning the head section". ● Install the system apart from other electrical appliances and TV set. ● Adjust the recording level referring to "Recording operation on cassette deck". ● Press the DOLBY NR key to B or C.
Sound is vibrating.	● The capstans or pinch rollers are dirty. ● Tape is irregularly wound.	● Clean the head referring to "Cleaning the head section". ● Wind the tape regularly by fast forwarding, rewinding or playing it fully from one reel to another.

Notes:
1. With some tapes, a squeaky noise is produced when the tape is topped automatically. This is due to the tape protection function, and not a malfunction.
2. Do not use 120-minute tapes, for the tape is too thin and gets easily tangled.
3. This system is microprocessor-controlled, so malfunction may occur due to external noise or interference noise. In such a case, unplug the power cord, plug it and turn power on again.
4. Do not use contact cleaners because it could cause a malfunction. Be specially careful against contact cleaners containing oil, for they may deform the plastic components.

Specifications

⚠ Caution : Read this page carefully to ensure safe operation.

For the M-85 system

Amplifier A-85

Rated power output
Front
(IEC/NF) from 63Hz to 12,500Hz, 0.7% T.H.D. at 8 Ω ..... 70W + 70W
(DIN) 1,000Hz at 8 Ω ..... 70W + 70W
Center
(DIN) 1,000Hz, 0.9% T.H.D. at 8 Ω ..... 15W + 15W
Rear
(DIN) 1,000Hz, 0.9% T.H.D. at 8 Ω ..... 15W + 15W

Total harmonic distortion (1kHz, 8 Ω) .....0.02% at 35W
Frequency response
CD ..... 20Hz ~ 70kHz, +0db, -3dB
Signal to noise ratio (IHF-A)
PHONO (MM) .....75dB for 2.5mV input
CD, TAPE, VIDEO .....95dB for 200mV input
Signal to noise ratio (DIN weighted at 50mW output)
PHONO (MM) 58dB
CD, TAPE, VIDEO 59dB
Input sensitivity/impedance
PHONO (MM) 2.5mV/47kΩ
CD, TAPE, VIDEO 200mV/47kΩ
MIC 1.5mV/47kΩ
Tone controls
BASS .....±10dB (at 100Hz)
TREBLE ..... ± 10dB (at 10kHz)
N.B. circuit (-30dB Volume level) ..... +12dB (at 55Hz)
Output
SUPER WOOFER OUT .....1.8 V/600 Ω
General
Power consumption ..... 220 W
Dimensions ..... **W:** 360 mm
H: 129 mm
D: 380 mm
Weight (net) .....9.3 kg
AC outlets (switched) .....2 (Total 200W max)

Tuner T-85L

FM tuner section
Tuning frequency range ..... 87.5MHz~108MHz
Antenna impedance .....75 Ω unbalanced
Sensitivity (DIN)
MONO .....0.6 μV
STEREO .....25 μV
Total harmonic distortion (DIN at 1kHz, 65.2dBf Input)
MONO 0.3%
STEREO 0.8%
Signal to noise ratio
(DIN weighted at 1kHz, 65.2dBf input)
MONO 70dB
STEREO 63dB
Selectivity (DIN ± 300kHz) 64dB
Stereo separation (DIN at 1kHz) 42dB
Sub carrier suppression (DIN) ..... 55dB (at 19kHz)
65dB (at 38kHz)
Frequency response ..... 30Hz ~ 15kHz, +0.5dB, -3.5dB

MW Tuner section
Tuning frequency range .....531 kHz ~ 1,602kHz
Usable sensitivity ..... 13 μV/(500 μV/m)
Total harmonic distortion 0.6%
Signal to noise ratio 50dB
Selectivity 23dB

LW Tuner section
Tuning frequency range .....153kHz ~ 281kHz
Usable sensitivity .....20 μV
Total harmonic distortion 0.5%
Signal to noise ratio 47dB
Selectivity 30dB

General
Power consumption ..... AC 16V, 0.4A
Dimensions .....**W:** 360 mm
H: 89 mm
D: 359 mm
Weight (net) ..... 2.6 kg

Cassette X-85

Type .....4-track, 2-channel stereo
Recording system
..... AC bias system (Bias frequency: 105kHz)
Tape speed .....4.76cm/sec. (1–7/8 ips)
Heads
Playback/Record head ..... 1 (B deck)
Playback head ..... 1 (A deck)
Erasing head ..... 1 (B deck)
Motors .....1 (each deck)
Fast winding time ....Approx. 110 seconds with C-60 tape

Frequency response (B deck)
Normal tape .....30Hz to 18,000Hz, ± 3dB
CrO_2 tape .....30Hz to 19,000Hz, ± 3dB
Metal tape .....30Hz to 20,000Hz, ± 3dB

Signal to noise rato
Dolby C NR ON ..... 75dB (Metal tape)
Dolby B NR ON ..... 67dB (Metal tape)
Dolby NR OFF ..... 58dB (Metal tape)

Harmonic distortion .....Less than 0.7%
(at 1kHz, 0dB 3rd H.D. Metal/Normal tape)
Wow and flutter .....0.08% (W.R.M.S.)
± 0.16% (DIN)

General

Power consumption .....AC 16V, 2.0A
Dimensions .....**W:** 360 mm
H: 120 mm
D: 357 mm

Weight (net) ..... 3.7 kg

Note:
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

⚠ Caution : Read this page carefully to ensure safe operation.

For the M-959 system

Amplifier A-85

Rated power output
Front
(IHF '66) from 40Hz to 20,000 Hz, 0.09% T.H.D., at 6 Ω ..... 70W + 70W
(EIAJ) Maximum useful power at 6Ω ..... 85W + 85W
Surround power output (EIAJ Maximum useful power)
Center (at Dolby Surround mode) at 8 Ω 30W
Presence at 8 Ω ..... 20W + 20W
Rear at 8 Ω ..... 20W + 20W

Total harmonic distortion (1kHz, 6 Ω) .....0.02% at 35W
Signal to noise ratio (IHF-A)
PHONO (MM) .....75dB for 2.5mV input
CD, TAPE, VIDEO .....95dB for 200mV input
Input sensitivity/impedance
PHONO (MM) 2.5 mV/47kΩ
CD, TAPE, VIDEO 200mV/47kΩ
MIC 1.3mV/47kΩ
Tone controls
BASS .....±10dB (at 100Hz)
TREBLE .....±10dB (at 10kHz)
N.B. circuit (-30dB Volume level).....+12dB (at 55Hz)

Output
SUPER WOOFER OUT .....1.8 V/600 Ω

General
Power consumption ..... 220 W
Dimensions ..... **W:** 360 mm
H: 129 mm
D: 380 mm
Weight (net) .....9.3 kg
AC outlets (switched) .....2 (Total 200W max)

Tuner T-85

FM tuner section
Tuning frequency range 87.5MHz-108MHz
Antenna impedance ... 300 Ω balanced & 75 Ω unbalanced
Sensitivity (IHF) ..... 10.8dBf (0.95 μ V at 75 Ω)
50 dB quieting sensitivity
MONO ..... 16.2dBf (3.5 μ V at 75 Ω)
STEREO ..... 38.2dBf (45 μ V at 75 Ω)
Total harmonic distortion at 1,000Hz
MONO 0.4%
STEREO 0.5%
Signal to noise ratio at 65 dBf (IHF)
MONO 80dB
STEREO 73dB
Selectivity (IHF ± 400kHz) 50dB
Stereo separation (IHF at 1kHz) 40dB
Frequency response ..... 30Hz ~ 15kHz, +0.5dB, -3.5dB

AM Tuner section

Tuning frequency range
9 kHz step .....531kHz ~ 1,602 kHz
10 kHz step .....530kHz ~ 1,610 kHz
Usable sensitivity ..... 14 μ V/(500 μ V/m)
Total harmonic distortion 0.6%
Signal to noise ratio 48dB
Selectivity 23dB

General
Power consumption ..... AC 16V, 0.4A
Dimensions .....**W:** 360 mm
H: 89 mm
D: 359 mm
Weight (net) .....2.6 kg

Cassette X-85

Type .....4-track, 2-channel stereo
Recording system
..... AC bias system (Bias frequency: 105kHz)
Tape speed .....4.76cm/sec. (1–7/8 ips)
Heads
Playback/Record head ..... 1 (B deck)
Playback head ..... 1 (A deck)
Erasing head ..... 1 (B deck)
Motors .....1 (each deck)
Fast winding time ....Approx. 110 seconds with C-60 tape
Frequency response (B deck)
Normal tape .....30Hz to 18,000Hz, ± 3dB
CrO_2 tape .....30Hz to 19,000Hz, ± 3dB
Metal tape .....30Hz to 20,000Hz, ± 3dB
Signal to noise rato
Dolby C NR ON ..... 75dB (Metal tape)
Dolby B NR ON ..... 67dB (Metal tape)
Dolby NR OFF ..... 58dB (Metal tape)

Harmonic distortion .....Less than 0.7%
(at 1kHz, 0dB 3rd H.D. Metal/Normal tape)
Wow and flutter .....0.08% (W.R.M.S.)
± 0.16% (DIN)

General

Power consumption .....AC 16V, 2.0A
Dimensions .....**W:** 360 mm
H: 120 mm
D: 357 mm
Weight (net) .....3.7 kg

Note:
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.